

APPENDIX A: PROPOSED SITE PLAN



SITE AREAS
BOUNDARY 1,412,323 S.F.
TOTAL SITE 830,133 S.F.

- EAST SIDE**
- 150 TOTAL APARTMENT UNITS EAST
- 24 TYPE "I" 2-Bd, 2-Ba (1032 S.F.) UNITS
- 18 TYPE "W6E" 2-Bd, 2-Ba (1067 S.F.) UNITS
- 36 TYPE "P4" 2-Bd, 2-Ba (1038 S.F.) UNITS
- 36 TYPE "J" 3-Bd, 2-Ba (1205 S.F.) UNITS
- 36 TYPE "A" 1-Bd, 1-Ba (651 S.F.) UNITS
- 304 TOTAL PARKING STALLS
- 162 STANDARD STALLS
- 120 COMPACT STALLS
- 7 HANDICAP STALLS
- 2 12x19 LOADING AREAS
- 15 GARAGES (1 HANDICAP)
- 42 BICYCLE SPACES IN 7 RACKS (38 REQUIRED)
- 1 40'x50' SPORTS COURT
- 1 30'x30' TOT LOT
- 1 TRASH COMPACTOR / RECYCLE
- 2 PLAY AREAS
- 1 U.S. MAIL BOX AREA
- 1 CLUBHOUSE / MANAGERS OFFICE (PHASE 1)
- 1 SWIMMING POOL (42'x22') (PHASE 1)

- WEST SIDE**
- 60 TOTAL APARTMENT UNITS WEST
- 24 TYPE "HE" 2-Bd, 2-Ba (1010 S.F.) UNITS
- 18 TYPE "W6I" 2-Bd, 2-Ba (1037 S.F.) UNITS
- 18 TYPE "W6E" 2-Bd, 2-Ba (1067 S.F.) UNITS
- 62 TOWNHOUSE UNITS
- 181 TOTAL PARKING STALLS
- 102 STANDARD STALLS
- 70 COMPACT STALLS
- 1 HANDICAP STALLS
- 1 12x19 LOADING AREA
- 8 GARAGES
- 12 BICYCLE SPACES IN 2 RACKS (12 REQUIRED)
- 1 U.S. MAIL BOX AREA

★ THE INDICATED LOWER FLOOR UNITS IN BUILDINGS 5 & 9 ARE TO BE TYPE A UNITS IN ACCORDANCE WITH THE 2014 OSSC SEC. 1107.6.2.1.1 (NOTED ON FLOOR PLANS). ALL OTHER LOWER FLOOR UNITS TO BE TYPE B UNITS IN ACCORDANCE WITH THE 2014 OSSC SEC. 1107.6.2.1.2

- ⊙ - POLE LIGHT MAXIMUM 14' TALL
- ★ - POST LIGHT MAXIMUM 5' TALL
- ▨ - LOCATION OF ELECTRICAL SEPARATION WALL
- ① - MAXIMUM 1:12 SLOPE ON SIDEWALK END RAMPS
- ||| - 6 BICYCLE SPACES.

ADA HANDICAP ACCESSIBILITY NOTES:

- ALL ON-SITE WALKWAYS, PEDESTRIAN CONNECTIONS TO THE PUBLIC SIDEWALK AND ROUTES TO BUILDING ENTRANCES ARE ACCESSIBLE WITH RUNNING SLOPES LESS THAN 5% AND CROSS SLOPE LESS THAN 2% MAX. LANDINGS AT BOTTOM OF STAIRS AND EXT. FACE OF ENTRANCE DOORS SHALL HAVE A SLOPE IN THE DIRECTION OF TRAVEL NOT TO EXCEED 2%.
- HANDICAP PARKING STALLS AND ACCESS AISLES ARE TO HAVE SLOPES IN ANY DIRECTION OF LESS THAN 2% MAX. GRAPHIC MARKINGS & SIGNAGE FOR HANDICAP AND VAN ACCESSIBLE STALLS WILL BE PER OSSC 2010 CHPTR. 11 AND ORS. REQUIREMENTS.
- HANDICAP ACCESSIBLE CURB RAMPS SHALL HAVE A RUNNING SLOPE NOT TO EXCEED 1:12 MAX. AND A CROSS SLOPE NOT TO EXCEED 1%.
- THE COMMUNITY BUILDING & ON-SITE LAUNDRY FACILITIES WILL BE FULLY HANDICAP ACCESSIBLE IN ACCORDANCE WITH ANSI A117.1 AND CHAPTER 11 OF THE 2010 OSSC.
- 2% OF THE LIVING UNITS OR (3) UNITS WILL BE TYPE 'A' HANDICAP ACCESSIBLE. THESE INCLUDE A 1, 2 AND 3 BEDROOM UNIT AS INDICATED ON THIS SITE PLAN. THE BALANCE OF THE GROUND FLOOR LIVING UNITS WILL BE TYPE 'B' ADAPTABLE UNITS IN ACCORDANCE WITH ANSI A117.1.

SITE PLAN

MCKENZIE HEIGHTS PHASE 2

NO CHANGES, MODIFICATIONS OR REPRODUCTIONS TO BE MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM THE DESIGN ENGINEER. DIMENSIONS & NOTES TAKE PRECEDENCE OVER GRAPHICAL REPRESENTATION.

2012-SITE SDR3-SITE

Design: M.D.G.

Drawn: T.N.S.

Checked: M.D.G.

Date: AUG. 2020

Scale: AS SHOWN

REGISTERED PROFESSIONAL ENGINEER

MARK D. GENT

EXPIRES: 06-30-2023

JOB # 7071

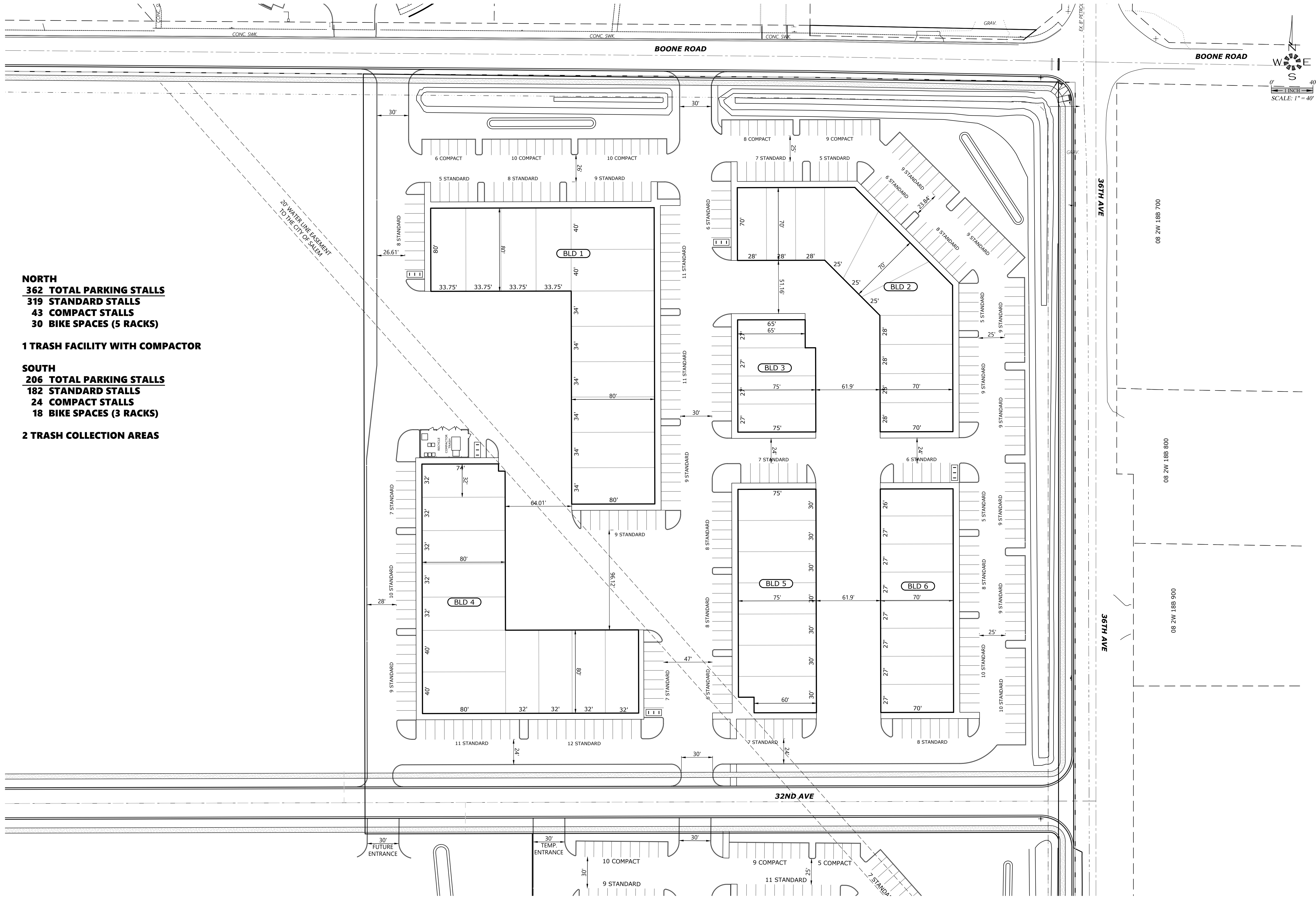
J:\7146\7146-BooneRoadFlexSpace\Draw\20\7146p-05.dwg, SDR3.1-SITE, NORTN, 11/17/2021 1:38:41 PM, T801

NORTH
362 TOTAL PARKING STALLS
319 STANDARD STALLS
43 COMPACT STALLS
30 BIKE SPACES (5 RACKS)

1 TRASH FACILITY WITH COMPACTOR

SOUTH
206 TOTAL PARKING STALLS
182 STANDARD STALLS
24 COMPACT STALLS
18 BIKE SPACES (3 RACKS)

2 TRASH COLLECTION AREAS

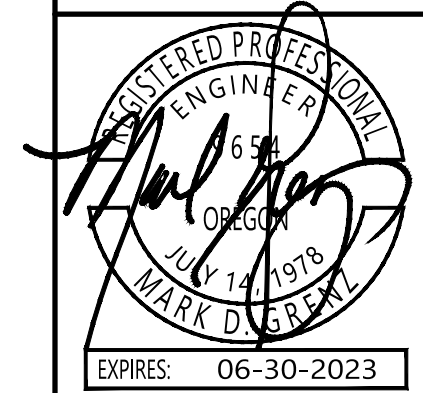


SITE PLAN NORTH

BOONE ROAD FLEX SPACE & SELF-STORAGE

NO CHANGES, MODIFICATIONS
OR REPRODUCTIONS TO BE
MADE TO THESE DRAWINGS
WITHOUT WRITTEN
AUTHORIZATION FROM THE
DESIGN ENGINEER.
DIMENSIONS & NOTES TAKE
PRECEDENCE OVER
GRAPHICAL REPRESENTATION.

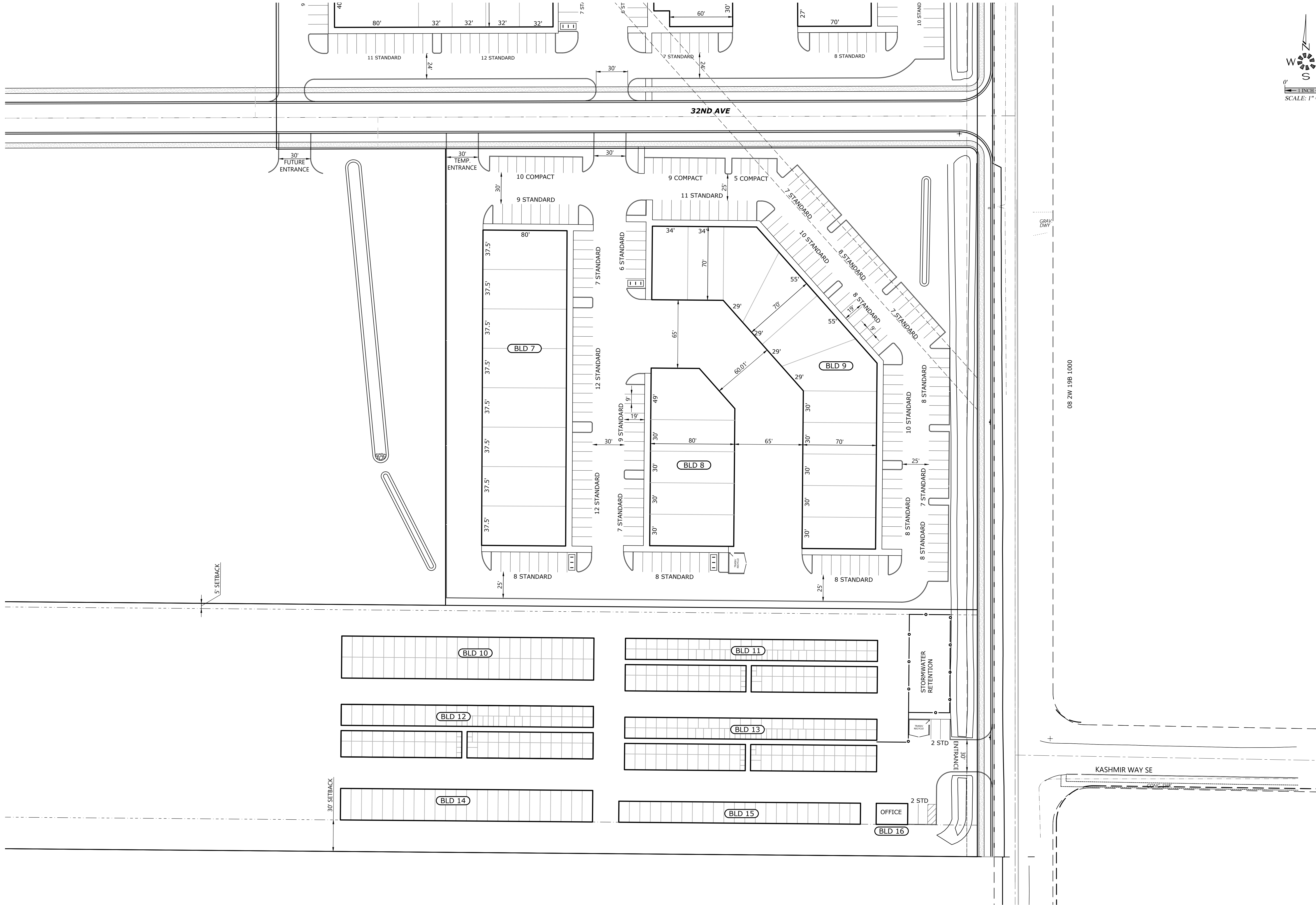
7146p-05 SDR3.1-SITE NORTN
Design: M.D.G.
Drawn: T.N.S.
Checked: M.D.G.
Date: NOV. 2021
Scale: AS SHOWN



JOB # 7146

SDR3.1

J:\7146\7146-BooneRoad\sd3\Draw - 20\7146p-05.dwg, SDR3.2-SITE, 5/17/2021, 1:38:48 PM, T8aul



7146p-05 - SDR3.2-SITE.dwg

Design: M.D.G.

Drawn: T.N.S.

Checked: M.D.G.

Date: NOV. 2021

Scale: AS SHOWN

REGISTERED PROFESSIONAL ENGINEER

6546

OREGON

JULY 11, 1978

MARK D. STEAL

NO CHANGES, MODIFICATIONS OR REPRODUCTIONS TO BE MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM THE DESIGN ENGINEER.

DIMENSIONS & NOTES TAKE PRECEDENCE OVER GRAPHICAL REPRESENTATION.

EXPIRES

06-30-2023

JOB # 7146

SDR3.2

BOONE ROAD FLEX SPACE & SELF-STORAGE

SITE PLAN SOUTH

MULTI/TECH

ENGINEERING SERVICES, INC.

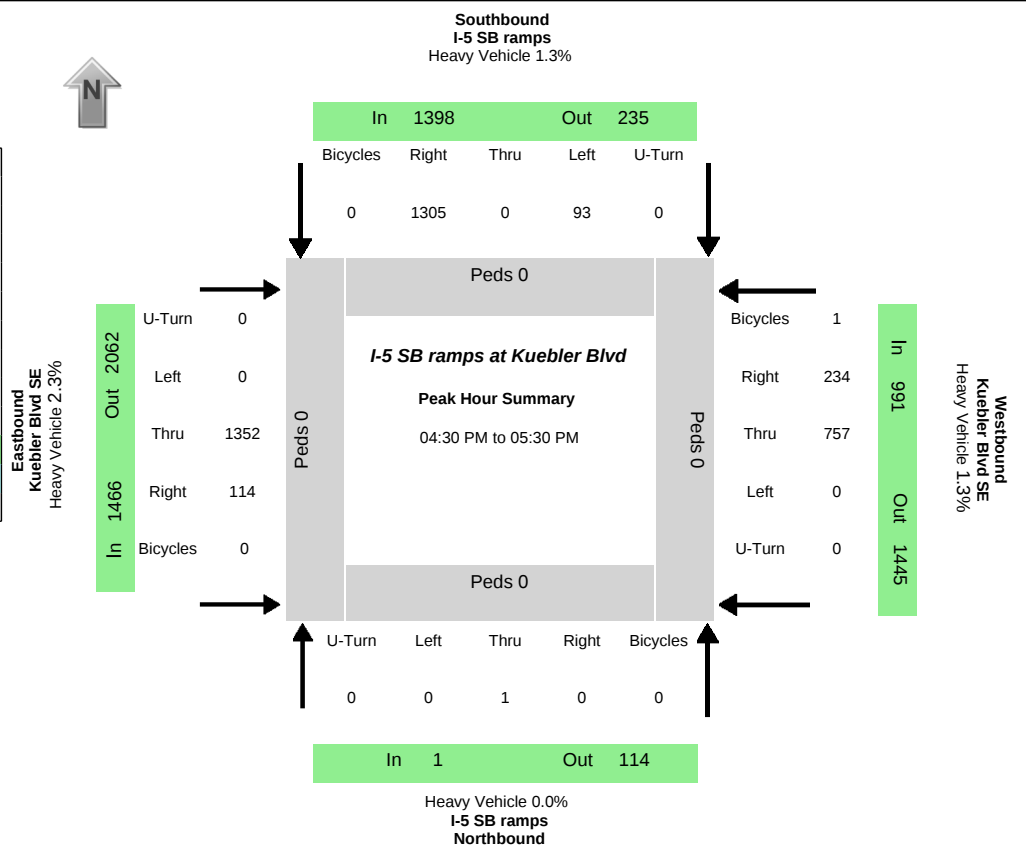
1155 13TH ST., S.E. SALEM, OR. 97302

PH. (503) 363 - 9227 FAX (503) 364-1260

WWW.MULTITECHENGINEERING.COM

APPENDIX B: TRAFFIC COUNTS

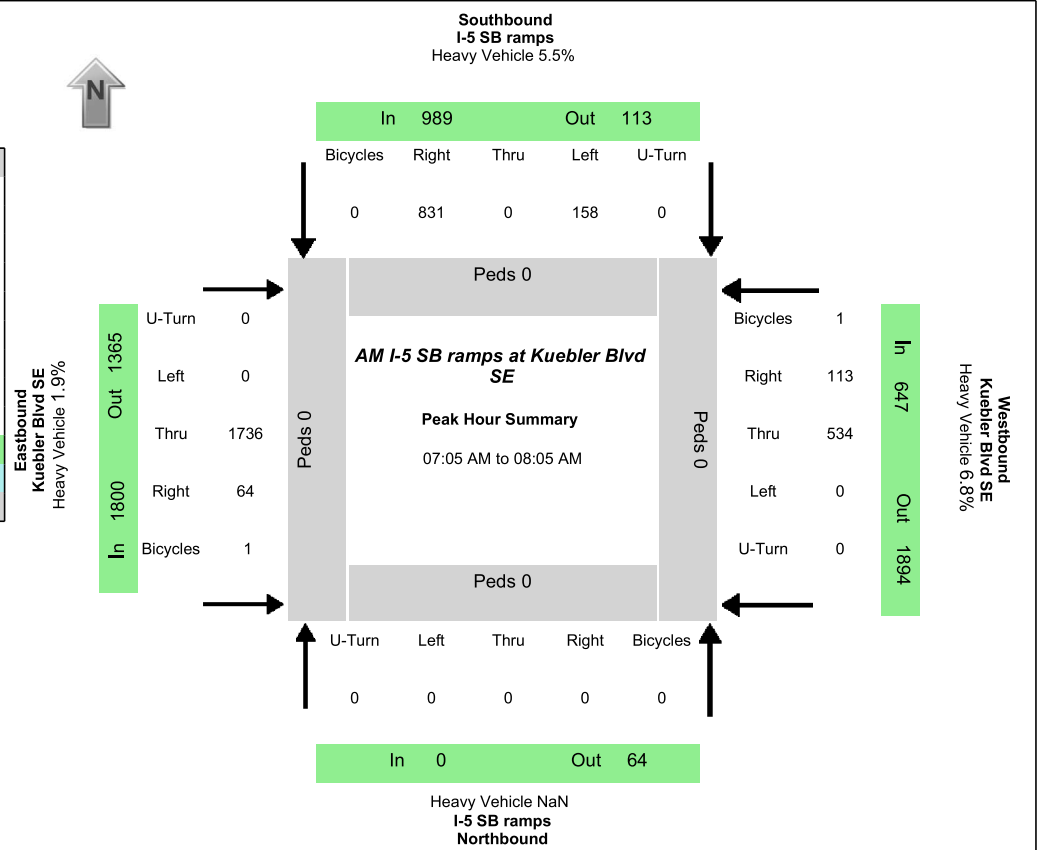
Data Provided by K-D-N.com 503-594-4224	
N/S street	I-5 SB ramps
E/W street	Kuebler Blvd SE
City, State	Salem OR
Site Notes	
Location	44.885282 - -123.000451
Start Date	Tuesday, November 19, 2019
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:30:00 PM
Peak 15 Min Start	04:35:00 PM
PHF (15-Min Int)	0.95



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	1	0	0	93	0	1305	0	0	1352	114	0	0	757	234	0	1	1398	1466	991	114	235	2062	1445
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	4.3%	0.0%	1.1%	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	0.8%	3.0%	0.0%	0.0%	1.3%	2.3%	1.3%	0.0%	3.0%	1.0%	2.6%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	
All Vehicle Volumes																							
Time	Northbound I-5 SB ramps				Southbound I-5 SB ramps				Eastbound Kuebler Blvd SE				Westbound Kuebler Blvd SE				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
03:00:00 PM	0	0	0	0	7	0	53	0	0	120	4	0	0	59	12	0							
03:05:00 PM	0	0	0	0	10	0	79	0	0	92	9	0	0	59	15	0							
03:10:00 PM	0	0	0	0	6	0	93	0	0	98	9	0	0	47	11	0	783						
03:15:00 PM	0	0	0	0	8	0	70	0	0	82	6	0	0	64	18	0	776						
03:20:00 PM	0	0	0	0	7	0	82	0	0	101	8	0	0	66	23	0	799						
03:25:00 PM	0	0	0	0	8	0	102	0	0	81	6	0	0	47	13	0	792						
03:30:00 PM	0	0	0	0	14	0	78	0	0	77	3	0	0	41	14	0	771						
03:35:00 PM	0	0	0	0	11	0	81	0	0	102	13	0	0	73	16	0	780						
03:40:00 PM	0	0	0	0	9	0	87	0	0	112	8	0	0	72	19	0	830						
03:45:00 PM	0	0	0	0	4	0	111	0	0	130	7	0	0	74	16	0	945						
03:50:00 PM	0	0	0	0	8	0	91	0	0	97	5	0	0	47	13	0	910						
03:55:00 PM	0	0	0	0	9	0	90	0	0	90	9	0	0	50	10	0	861	3266					
04:00:00 PM	0	0	0	0	11	0	117	0	0	108	6	0	0	45	14	0	820	3312					
04:05:00 PM	0	0	0	0	9	0	129	0	0	99	8	0	0	47	22	0	873	3362					
04:10:00 PM	0	0	0	0	8	0	96	0	0	101	12	0	0	69	18	0	919	3402					
04:15:00 PM	0	0	0	0	8	0	108	0	0	102	5	0	0	68	20	0	929	3465					
04:20:00 PM	0	0	0	0	10	0	115	0	0	75	18	0	0	60	15	0	908	3471					
04:25:00 PM	0	0	0	0	10	0	100	0	0	102	9	0	0	63	11	0	899	3509					
04:30:00 PM	0	0	0	0	11	0	85	0	0	105	6	0	0	56	12	0	863	3557					
04:35:00 PM	0	0	0	0	13	0	108	0	0	117	14	0	0	61	26	0	909	3600					
04:40:00 PM	0	0	0	0	7	0	115	0	0	116	10	0	0	55	21	0	938	3617					
04:45:00 PM	0	0	0	0	4	0	107	0	0	130	13	0	0	83	17	0	1017	3629					
04:50:00 PM	0	0	0	0	7	0	109	0	0	101	11	0	0	65	17	0	988	3678					
04:55:00 PM	0	1	0	0	12	0	133	0	0	105	6	0	0	53	21	0	995	3751					

05:00:00 PM	0	0	0	0	6	0	87	0	0	105	4	0	0	78	17	0	938	3747
05:05:00 PM	0	0	0	0	3	0	94	0	0	114	10	0	0	60	23	0	932	3737
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05:20:00 PM	0	0	0	0	7	0	113	0	0	103	5	0	0	61	19	0	1001	3830
05:25:00 PM	0	0	0	0	11	0	131	0	0	96	9	0	0	62	12	0	967	3856
05:30:00 PM	0	0	0	0	4	0	84	0	0	101	10	0	0	61	12	0	901	3853
05:35:00 PM	0	0	0	0	12	0	114	0	0	99	9	0	0	48	24	0	899	3820
05:40:00 PM	0	0	0	0	7	0	117	0	0	114	9	0	0	44	17	0	886	3804
05:45:00 PM	0	0	0	0	7	0	88	0	0	99	5	0	0	58	14	0	885	3721
05:50:00 PM	0	0	0	0	8	0	84	0	0	93	4	0	0	65	5	0	838	3670
05:55:00 PM	0	0	0	0	10	0	73	0	0	93	6	0	0	40	15	0	767	3576

Data Provided by K-D-N.com 503-594-4224	
N/S street	I-5 SB ramps
E/W street	Kuebler Blvd SE
City, State	Salem OR
Site Notes	
Location	44.885282 - -123.000451
Start Date	Tuesday, November 19, 2019
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:05:00 AM
Peak 15 Min Start	07:40:00 AM
PHF (15-Min Int)	0.88



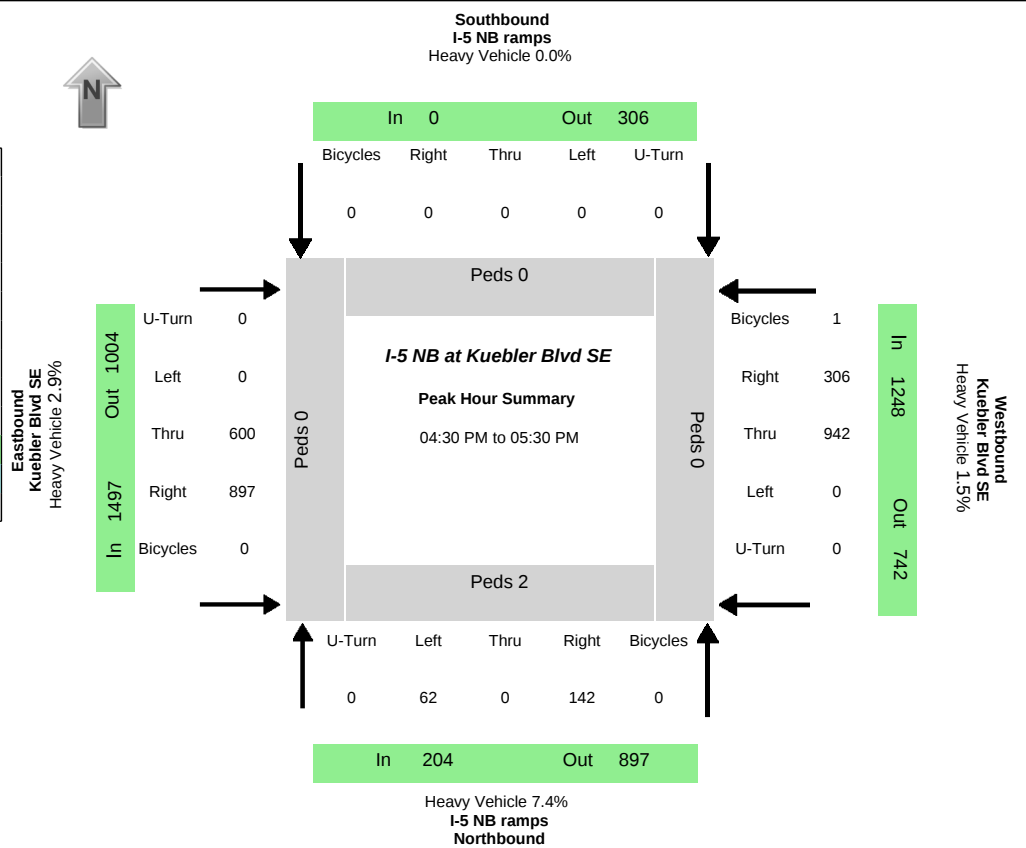
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	158	0	831	0	0	1736	64	0	0	534	113	0	0	989	1800	647	64	113	1365	1894
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	10.1%	0.0%	4.6%	0.0%	0.0%	1.8%	3.1%	0.0%	0.0%	3.6%	22.1%	0.0%	NaN	5.5%	1.9%	6.8%	3.1%	22.1%	4.2%	2.5%

PHV - Bicycles																PHV - Pedestrians						
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk					Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB		
0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0		2	0	0	0	0	

All Vehicle Volumes																		
Time	Northbound I-5 SB ramps				Southbound I-5 SB ramps				Eastbound Kuebler Blvd SE				Westbound Kuebler Blvd SE				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
06:00:00 AM	0	0	0	0	6	0	13	0	0	72	1	0	0	14	12	0		
06:05:00 AM	0	0	0	0	6	0	13	0	0	76	2	0	0	9	14	0		
06:10:00 AM	0	0	0	0	10	0	17	0	0	82	6	0	0	20	7	0	380	
06:15:00 AM	0	0	0	0	4	0	23	0	0	81	6	0	0	22	12	0	410	
06:20:00 AM	0	0	0	0	12	0	21	0	0	74	8	0	0	19	11	0	435	
06:25:00 AM	0	0	0	0	2	0	24	0	0	72	0	0	0	17	10	0	418	
06:30:00 AM	0	0	0	0	4	0	34	0	0	81	1	0	0	20	4	0	414	
06:35:00 AM	0	0	0	0	13	0	33	0	0	112	4	0	0	24	5	0	460	
06:40:00 AM	0	0	0	0	6	0	48	0	0	111	1	0	0	33	8	0	542	
06:45:00 AM	0	0	0	0	8	0	45	0	0	106	4	0	0	33	12	0	606	
06:50:00 AM	0	0	0	0	15	0	58	0	0	105	5	0	0	28	9	0	635	
06:55:00 AM	0	0	0	0	9	0	51	0	0	129	4	0	0	33	6	0	660	2000
07:00:00 AM	0	0	0	0	13	0	33	0	0	131	5	0	0	34	8	0	676	2106
07:05:00 AM	0	0	0	0	10	0	52	0	0	121	3	0	0	29	7	0	678	2208
07:10:00 AM	0	0	0	0	7	0	54	0	0	161	7	0	0	43	4	0	722	2342
07:15:00 AM	0	0	0	0	3	0	60	0	0	135	5	0	0	37	13	0	751	2447
07:20:00 AM	0	0	0	0	13	0	61	0	0	102	3	0	0	52	6	0	766	2539
07:25:00 AM	0	0	0	0	12	0	53	0	0	126	8	0	0	47	12	0	748	2672
07:30:00 AM	0	0	0	0	13	0	68	0	0	157	4	0	0	39	16	0	792	2825
07:35:00 AM	0	0	0	0	12	0	57	0	0	169	6	0	0	43	8	0	850	2929
07:40:00 AM	0	0	0	0	24	0	72	0	0	164	6	0	0	58	12	0	928	3058
07:45:00 AM	0	0	0	0	16	0	90	0	0	175	6	0	0	40	10	0	968	3187
07:50:00 AM	0	0	0	0	10	0	82	0	0	143	5	0	0	55	9	0	977	3271
07:55:00 AM	0	0	0	0	23	0	113	0	0	135	5	0	0	36	3	0	956	3354

08:00:00 AM	0	0	0	0	15	0	69	0	0	148	6	0	0	55	13	0	925	3436
08:05:00 AM	0	0	0	0	6	0	66	0	0	97	3	0	0	41	9	0	843	3436
08:10:00 AM	0	0	0	0	9	0	52	0	0	108	4	0	0	29	12	0	742	3374
08:15:00 AM	0	0	0	0	8	0	57	0	0	107	0	0	0	43	5	0	656	3341
08:20:00 AM	0	0	0	0	6	0	17	0	0	33	2	0	0	4	13	0	509	3179
08:25:00 AM	0	0	0	0	18	0	96	0	0	123	9	0	0	58	11	0	610	3236
08:30:00 AM	0	0	0	0	13	0	64	0	0	97	2	0	0	50	16	0	632	3181
08:35:00 AM	0	0	0	0	9	0	50	0	0	101	5	0	0	50	2	0	774	3103
08:40:00 AM	0	0	0	0	8	0	66	0	0	89	3	0	0	41	5	0	671	2979
08:45:00 AM	0	0	0	0	9	0	49	0	0	114	1	0	0	39	6	0	647	2860
08:50:00 AM	0	0	0	0	7	0	72	0	0	98	7	0	0	52	10	0	676	2802
08:55:00 AM	0	0	0	0	8	0	55	0	0	91	5	0	0	38	11	0	672	2695

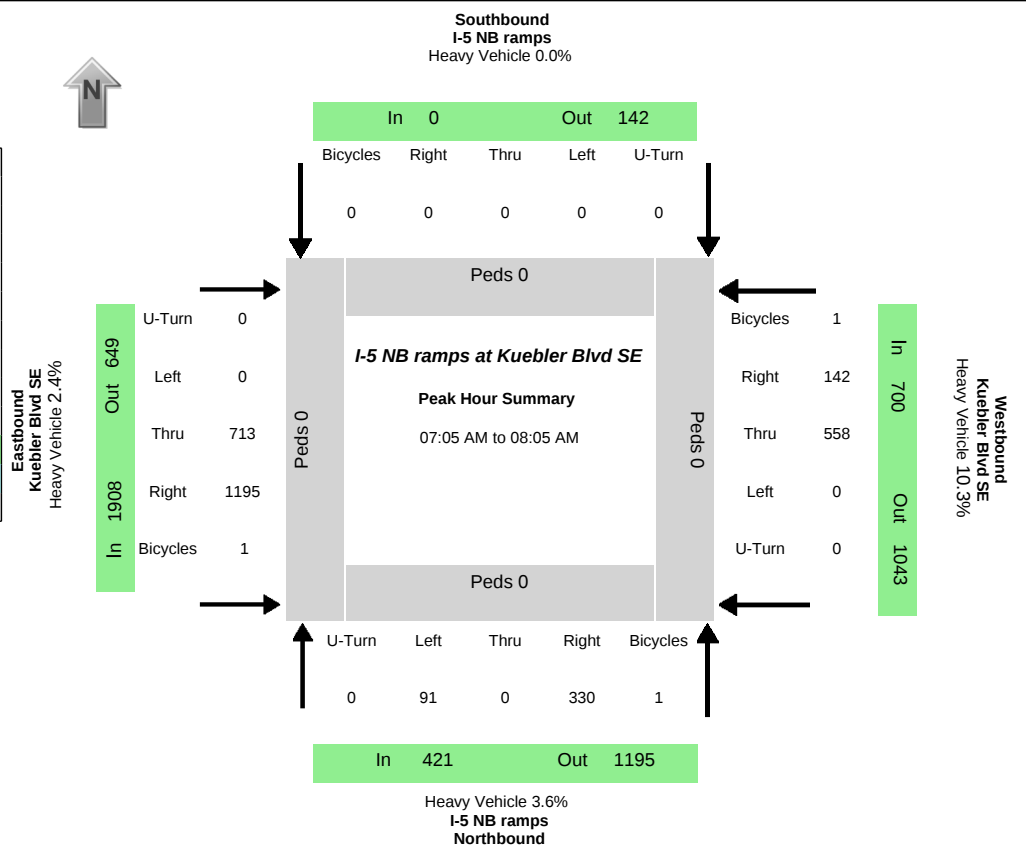
Data Provided by K-D-N.com 503-594-4224	
N/S street	I-5 NB ramps
E/W street	Kuebler Blvd SE
City, State	Salem OR
Site Notes	
Location	44.885045 - -122.996372
Start Date	Tuesday, November 19, 2019
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:30:00 PM
Peak 15 Min Start	04:35:00 PM
PHF (15-Min Int)	0.95



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
62	0	142	0	0	0	0	0	0	600	897	0	0	942	306	0	204	0	1497	1248	897	306	1004	742
Percent Heavy Vehicles																							
0.0%	0.0%	10.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	2.6%	0.0%	0.0%	1.3%	2.3%	0.0%	7.4%	0.0%	2.9%	1.5%	2.6%	2.3%	1.2%	4.9%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	0	2	
All Vehicle Volumes																							
Time	Northbound I-5 NB ramps				Southbound I-5 NB ramps				Eastbound Kuebler Blvd SE				Westbound Kuebler Blvd SE				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
03:00:00 PM	4	0	5	0	0	0	0	0	0	60	74	0	0	66	11	0							
03:05:00 PM	6	0	17	0	0	0	0	0	0	53	50	0	0	71	16	0							
03:10:00 PM	2	0	13	0	0	0	0	0	0	52	54	0	0	61	12	0	627						
03:15:00 PM	3	0	9	0	0	0	0	0	0	46	59	0	0	71	15	0	610						
03:20:00 PM	4	0	13	0	0	0	0	0	0	57	51	0	0	83	13	0	618						
03:25:00 PM	5	0	11	0	0	0	0	0	0	50	43	0	0	54	21	0	608						
03:30:00 PM	4	0	13	0	0	0	0	0	0	41	54	0	0	54	12	0	583						
03:35:00 PM	5	0	15	0	0	0	0	0	0	51	53	0	0	85	20	0	591						
03:40:00 PM	6	0	10	0	0	0	0	0	0	72	71	0	0	88	25	0	679						
03:45:00 PM	4	0	6	0	0	0	0	0	0	72	77	0	0	81	17	0	758						
03:50:00 PM	5	0	10	0	0	0	0	0	0	48	54	0	0	49	13	0	708						
03:55:00 PM	4	0	15	0	0	0	0	0	0	61	61	0	0	55	20	0	652	2566					
04:00:00 PM	8	0	14	0	0	0	0	0	0	62	53	0	0	55	19	0	606	2557					
04:05:00 PM	5	0	10	0	0	0	0	0	0	57	60	0	0	79	29	0	667	2584					
04:10:00 PM	4	0	12	0	0	0	0	0	0	43	73	0	0	79	17	0	679	2618					
04:15:00 PM	2	0	9	0	0	0	0	0	0	39	65	0	0	74	27	0	684	2631					
04:20:00 PM	6	0	19	0	0	0	0	0	0	43	54	0	0	80	21	0	667	2633					
04:25:00 PM	2	0	17	0	0	0	0	0	0	56	50	0	0	62	14	0	640	2650					
04:30:00 PM	4	0	8	0	0	0	0	0	0	61	71	0	0	62	24	0	654	2702					
04:35:00 PM	5	0	17	0	0	0	0	0	0	50	89	0	0	86	21	0	699	2741					
04:40:00 PM	7	0	12	0	0	0	0	0	0	51	66	0	0	81	23	0	738	2709					
04:45:00 PM	4	0	11	0	0	0	0	0	0	52	95	0	0	82	25	0	777	2721					
04:50:00 PM	9	0	13	0	0	0	0	0	0	50	80	0	0	73	27	0	761	2794					
04:55:00 PM	6	0	6	0	0	0	0	0	0	45	59	0	0	82	13	0	732	2789					

05:00:00 PM	3	0	10	0	0	0	0	0	0	51	71	0	0	76	24	0	698	2813
05:05:00 PM	7	0	13	0	0	0	0	0	0	51	60	0	0	73	38	0	688	2815
05:10:00 PM	4	0	11	0	0	0	0	0	0	37	82	0	0	89	28	0	728	2838
05:15:00 PM	3	0	15	0	0	0	0	0	0	53	86	0	0	95	30	0	775	2904
05:20:00 PM	3	0	13	0	0	0	0	0	0	52	65	0	0	67	43	0	776	2924
05:25:00 PM	7	0	13	0	0	0	0	0	0	47	73	0	0	76	10	0	751	2949
05:30:00 PM	8	1	16	0	0	2	0	0	1	42	58	0	0	57	12	0	666	2916
05:35:00 PM	4	0	13	0	0	0	0	0	0	51	63	0	0	63	19	0	636	2861
05:40:00 PM	5	0	16	0	0	0	0	0	0	59	66	0	0	65	14	0	635	2846
05:45:00 PM	4	0	14	0	0	0	0	0	0	49	49	0	0	78	6	0	638	2777
05:50:00 PM	7	0	15	0	0	0	0	0	0	62	52	0	0	47	19	0	627	2727
05:55:00 PM	1	0	11	0	0	0	0	0	0	58	50	0	0	55	12	0	589	2703

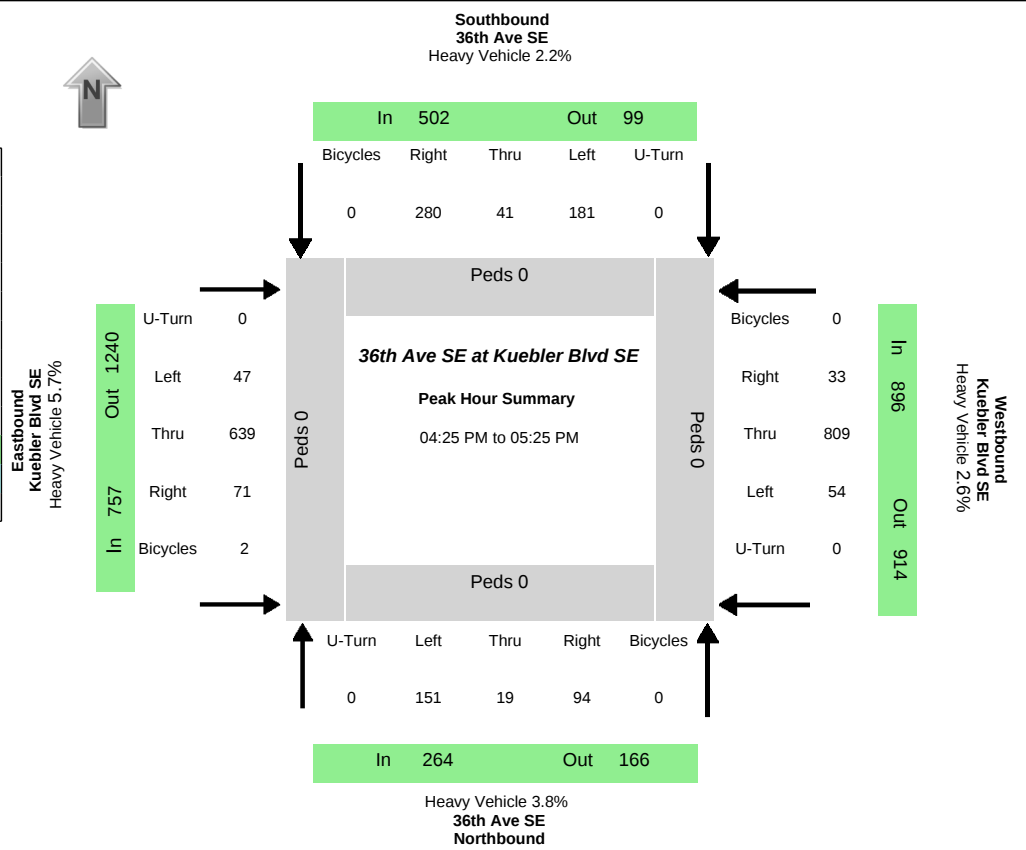
Data Provided by K-D-N.com 503-594-4224	
N/S street	I-5 NB ramps
E/W street	Kuebler Blvd SE
City, State	Salem OR
Site Notes	
Location	44.885045 - -122.996372
Start Date	Wednesday, November 20, 2019
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:05:00 AM
Peak 15 Min Start	07:35:00 AM
PHF (15-Min Int)	0.88



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
91	0	330	0	0	0	0	0	0	713	1195	0	0	558	142	0	421	0	1908	700	1195	142	649	1043
Percent Heavy Vehicles																							
0.0%	0.0%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.9%	1.4%	0.0%	0.0%	8.1%	19.0%	0.0%	3.6%	0.0%	2.4%	10.3%	1.4%	19.0%	6.9%	4.1%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	3	0	0	0	0	0		
All Vehicle Volumes																							
Time	Northbound I-5 NB ramps				Southbound I-5 NB ramps				Eastbound Kuebler Blvd SE				Westbound Kuebler Blvd SE				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	0	0	15	0	0	0	0	0	0	31	48	0	0	26	12	0							
06:05:00 AM	0	0	5	0	0	0	0	0	0	39	46	0	0	26	9	0							
06:10:00 AM	4	0	14	0	0	0	0	0	0	46	50	0	0	18	7	0	396						
06:15:00 AM	3	0	16	0	0	0	0	0	0	25	52	0	0	31	6	0	397						
06:20:00 AM	4	0	15	0	0	0	0	0	0	33	56	0	0	27	10	0	417						
06:25:00 AM	3	0	18	0	0	0	0	0	0	20	57	0	0	23	16	0	415						
06:30:00 AM	6	0	17	0	0	0	0	0	0	26	51	0	0	20	7	0	409						
06:35:00 AM	2	0	16	0	0	0	0	0	0	60	64	0	0	27	9	0	442						
06:40:00 AM	6	0	18	0	0	0	0	0	0	51	67	0	0	31	14	0	492						
06:45:00 AM	3	0	19	0	0	0	0	0	0	41	82	0	0	43	6	0	559						
06:50:00 AM	6	0	26	0	0	0	0	0	0	44	78	0	0	36	7	0	578						
06:55:00 AM	7	0	22	0	0	0	0	0	0	56	76	0	0	27	7	0	586	1889					
07:00:00 AM	3	1	18	0	0	0	0	0	0	57	85	0	0	37	7	0	600	1965					
07:05:00 AM	4	0	19	0	0	0	0	0	0	46	75	0	0	34	11	0	592	2029					
07:10:00 AM	5	0	29	0	0	0	0	0	0	64	95	0	0	42	10	0	642	2135					
07:15:00 AM	5	0	29	0	0	0	0	0	0	35	116	0	0	49	14	0	682	2250					
07:20:00 AM	11	0	25	0	0	0	0	0	0	36	74	0	0	51	13	0	703	2315					
07:25:00 AM	6	0	34	0	0	0	0	0	0	55	78	0	0	44	18	0	693	2413					
07:30:00 AM	4	0	33	0	0	0	0	0	0	68	99	0	0	55	3	0	707	2548					
07:35:00 AM	11	0	41	0	0	0	0	0	0	51	124	0	0	37	8	0	769	2642					
07:40:00 AM	7	0	29	0	0	0	0	0	0	68	121	0	0	58	13	0	830	2751					
07:45:00 AM	6	0	30	0	0	0	0	0	0	77	122	0	0	42	14	0	859	2848					
07:50:00 AM	18	0	18	0	0	0	0	0	0	69	101	0	0	49	13	0	855	2919					
07:55:00 AM	7	0	25	0	0	0	0	0	0	79	92	0	0	42	11	0	815	2980					

08:00:00 AM	7	0	18	0	0	0	0	0	0	65	98	0	0	55	14	0	781	3029
08:05:00 AM	6	0	17	0	0	0	0	0	0	34	81	0	0	40	10	0	701	3028
08:10:00 AM	7	0	16	0	0	0	0	0	0	42	79	0	0	35	5	0	629	2967
08:15:00 AM	3	0	11	0	0	0	0	0	0	41	73	0	0	41	10	0	551	2898
08:20:00 AM	9	0	12	0	0	0	3	0	0	23	27	0	0	50	8	0	495	2820
08:25:00 AM	8	0	12	0	0	0	0	0	0	59	86	0	0	36	10	0	522	2796
08:30:00 AM	9	0	9	0	0	0	0	0	0	53	56	0	0	48	16	0	534	2725
08:35:00 AM	4	0	20	0	0	0	0	0	0	48	66	0	0	49	13	0	602	2653
08:40:00 AM	9	0	22	0	0	0	0	0	0	38	71	0	0	42	14	0	587	2553
08:45:00 AM	2	0	15	0	0	0	0	0	0	49	62	0	0	48	11	0	583	2449
08:50:00 AM	5	0	13	0	0	0	0	0	0	55	62	0	0	50	9	0	577	2375
08:55:00 AM	7	0	20	0	0	0	0	0	0	39	57	0	0	43	8	0	555	2293

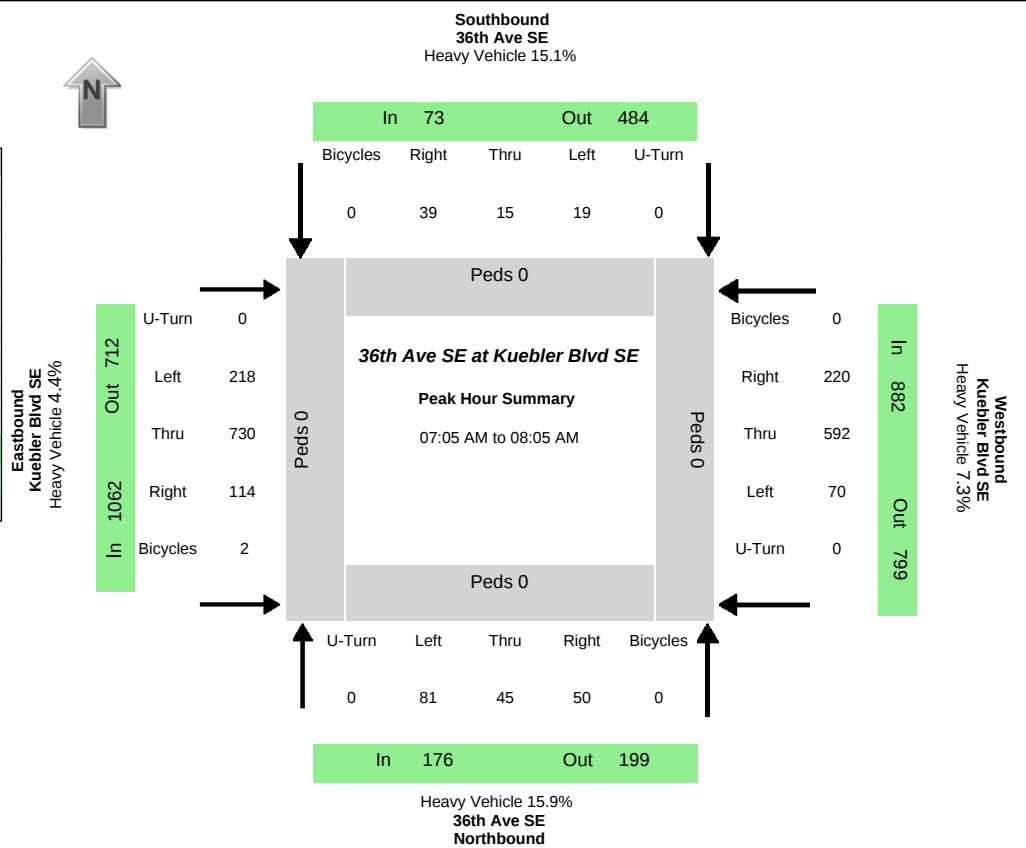
Data Provided by K-D-N.com 503-594-4224	
N/S street	36th Ave SE
E/W street	Kuebler Blvd SE
City, State	Salem OR
Site Notes	
Location	44.88479 - -122.988674
Start Date	Tuesday, November 19, 2019
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:25:00 PM
Peak 15 Min Start	05:05:00 PM
PHF (15-Min Int)	0.92



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
151	19	94	0	181	41	280	0	47	639	71	0	54	809	33	0	264	502	757	896	166	99	1240	914
Percent Heavy Vehicles																							
5.3%	0.0%	2.1%	0.0%	0.6%	14.6%	1.4%	0.0%	31.9%	3.9%	4.2%	0.0%	9.3%	2.0%	6.1%	0.0%	3.8%	2.2%	5.7%	2.6%	8.4%	17.2%	2.3%	3.1%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	
All Vehicle Volumes																							
Time	Northbound 36th Ave SE				Southbound 36th Ave SE				Eastbound Kuebler Blvd SE				Westbound Kuebler Blvd SE				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
03:00:00 PM	7	2	5	0	7	1	8	0	4	42	7	0	4	60	8	0							
03:05:00 PM	1	1	6	0	8	5	15	0	5	55	4	0	4	69	5	0							
03:10:00 PM	6	1	2	0	9	1	8	0	3	63	6	0	4	69	7	0	512						
03:15:00 PM	8	1	3	0	11	5	13	0	9	45	5	0	6	68	4	0	535						
03:20:00 PM	9	3	6	0	3	2	21	0	3	46	10	0	3	58	5	0	526						
03:25:00 PM	9	2	4	0	3	3	16	0	1	62	7	0	8	55	3	0	520						
03:30:00 PM	8	2	5	0	9	3	13	0	6	36	17	0	7	52	4	0	504						
03:35:00 PM	9	1	6	0	8	2	25	0	6	51	8	0	6	63	5	0	525						
03:40:00 PM	11	1	9	0	13	1	12	0	3	58	13	0	3	91	5	0	572						
03:45:00 PM	7	2	5	0	5	0	11	0	3	67	6	0	6	77	6	0	605						
03:50:00 PM	13	6	2	0	4	1	12	0	6	59	6	1	4	50	5	0	584						
03:55:00 PM	6	2	4	0	5	6	8	0	3	57	17	0	6	54	6	0	538	2142					
04:00:00 PM	8	1	5	0	12	5	15	0	4	52	12	0	4	57	5	0	523	2167					
04:05:00 PM	8	2	6	0	15	0	31	0	1	63	13	0	4	63	4	0	564	2199					
04:10:00 PM	7	3	8	0	14	7	20	0	1	38	2	0	4	57	5	0	556	2186					
04:15:00 PM	11	1	5	0	5	5	15	0	2	34	8	0	10	64	1	0	537	2169					
04:20:00 PM	7	2	2	0	12	2	26	0	3	54	6	0	12	66	5	0	524	2197					
04:25:00 PM	7	2	8	0	9	6	24	0	7	52	3	0	5	47	1	0	529	2195					
04:30:00 PM	10	1	6	0	10	3	25	0	6	65	5	0	3	54	2	0	558	2223					
04:35:00 PM	13	1	6	0	19	5	26	0	3	60	7	0	5	75	3	0	584	2256					
04:40:00 PM	19	2	8	0	17	0	19	0	3	48	8	0	2	62	7	0	608	2231					
04:45:00 PM	7	1	7	0	13	8	21	0	3	48	7	0	3	81	1	0	618	2236					
04:50:00 PM	9	2	5	0	11	1	27	0	3	56	12	0	2	62	5	0	590	2262					
04:55:00 PM	8	0	7	0	14	2	14	0	7	44	9	0	8	75	1	0	584	2277					

05:00:00 PM	23	2	7	0	19	5	22	0	4	36	5	0	6	54	3	0	570	2283
05:05:00 PM	18	3	12	0	21	2	26	0	6	63	4	0	3	70	4	0	607	2305
05:10:00 PM	12	1	12	0	15	4	21	0	0	53	4	0	5	88	0	0	633	2354
05:15:00 PM	19	2	11	0	19	3	35	0	0	46	1	0	7	62	2	0	654	2400
05:20:00 PM	6	2	5	0	14	2	20	0	5	68	6	0	5	79	4	0	638	2419
05:25:00 PM	8	0	5	0	3	0	8	0	2	55	7	0	8	62	2	0	583	2408
05:30:00 PM	15	6	11	0	10	0	13	0	3	45	3	0	3	43	1	0	529	2371
05:35:00 PM	7	4	6	0	6	0	17	0	3	58	7	0	2	63	3	0	489	2324
05:40:00 PM	9	0	2	0	9	6	8	0	2	67	6	0	3	50	6	0	497	2297
05:45:00 PM	12	1	4	0	6	1	8	0	1	58	4	0	3	67	1	0	510	2263
05:50:00 PM	3	0	6	0	3	1	11	0	2	66	5	0	2	58	3	0	494	2228
05:55:00 PM	1	2	10	0	2	2	7	0	2	65	11	0	3	50	2	0	483	2196

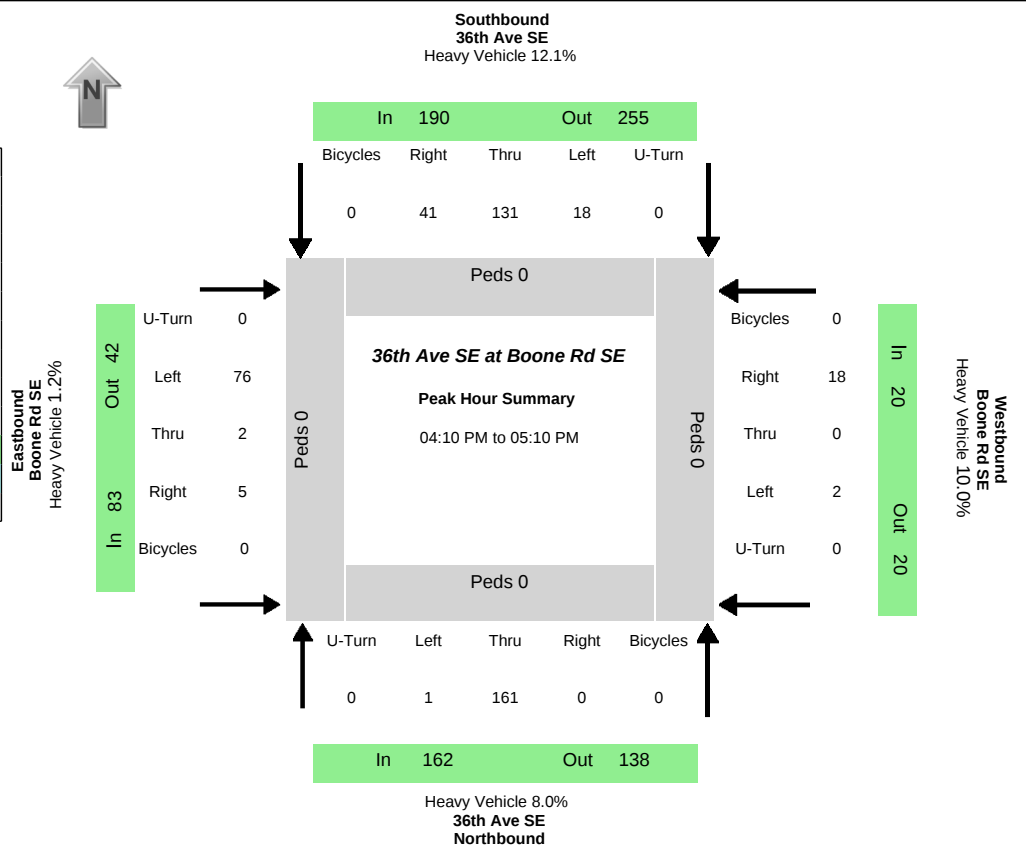
Data Provided by K-D-N.com 503-594-4224	
N/S street	36th Ave SE
E/W street	Kuebler Blvd SE
City, State	Salem OR
Site Notes	
Location	44.88479 - -122.988674
Start Date	Wednesday, November 20, 2019
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:05:00 AM
Peak 15 Min Start	07:50:00 AM
PHF (15-Min Int)	0.89



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
81	45	50	0	19	15	39	0	218	730	114	0	70	592	220	0	176	73	1062	882	199	483	712	799
Percent Heavy Vehicles																							
18.5%	8.9%	18.0%	0.0%	0.0%	0.0%	28.2%	0.0%	4.1%	4.9%	1.8%	0.0%	5.7%	9.6%	1.4%	0.0%	15.9%	15.1%	4.4%	7.3%	3.0%	3.3%	11.7%	5.6%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	0	0	0	0	0	
All Vehicle Volumes																							
Time	Northbound 36th Ave SE				Southbound 36th Ave SE				Eastbound Kuebler Blvd SE				Westbound Kuebler Blvd SE				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	2	3	0	0	1	2	1	0	8	26	10	0	3	37	3	0							
06:05:00 AM	5	0	5	0	1	0	3	0	3	31	4	0	3	27	8	0							
06:10:00 AM	3	0	2	0	4	1	1	0	3	48	6	0	3	24	7	0	288						
06:15:00 AM	6	1	1	0	1	0	1	0	10	36	3	0	3	28	5	0	287						
06:20:00 AM	5	0	3	0	4	0	2	0	4	36	6	0	4	28	3	0	292						
06:25:00 AM	11	0	3	0	1	0	1	0	7	27	7	0	9	27	11	0	294						
06:30:00 AM	2	0	2	0	1	0	3	0	12	28	4	0	6	25	14	0	296						
06:35:00 AM	5	4	1	0	3	3	6	0	8	54	11	0	7	30	5	0	338						
06:40:00 AM	7	5	7	0	0	0	5	0	14	46	10	0	8	27	20	0	383						
06:45:00 AM	5	1	4	0	1	1	1	0	10	44	7	0	6	43	15	0	424						
06:50:00 AM	3	1	4	0	1	0	5	0	23	48	8	0	13	37	22	0	452						
06:55:00 AM	1	3	3	0	1	2	1	0	11	51	12	0	12	31	17	0	448	1413					
07:00:00 AM	8	3	3	0	0	0	2	0	10	45	16	0	8	33	10	0	448	1455					
07:05:00 AM	7	4	3	0	0	2	4	0	14	54	11	0	12	38	5	0	437	1519					
07:10:00 AM	4	1	1	0	0	0	2	0	11	54	8	0	8	49	13	0	443	1568					
07:15:00 AM	10	4	4	0	1	0	2	0	16	49	7	0	8	50	19	0	475	1643					
07:20:00 AM	10	5	3	0	4	0	5	0	18	45	4	0	4	47	10	0	476	1703					
07:25:00 AM	7	6	1	0	1	1	6	0	19	56	4	0	5	51	14	0	496	1770					
07:30:00 AM	8	4	1	0	1	1	3	0	17	63	12	0	5	51	23	0	515	1862					
07:35:00 AM	11	3	8	0	2	2	1	0	18	70	8	0	4	42	14	0	543	1908					
07:40:00 AM	4	0	9	0	0	1	1	0	27	65	14	0	2	57	22	0	574	1961					
07:45:00 AM	6	5	8	0	1	1	0	0	13	76	9	0	4	60	22	0	590	2028					
07:50:00 AM	6	1	3	0	6	5	4	0	18	60	10	0	5	40	25	0	590	2046					
07:55:00 AM	4	8	6	0	2	1	4	0	23	75	14	0	10	44	31	0	610	2123					

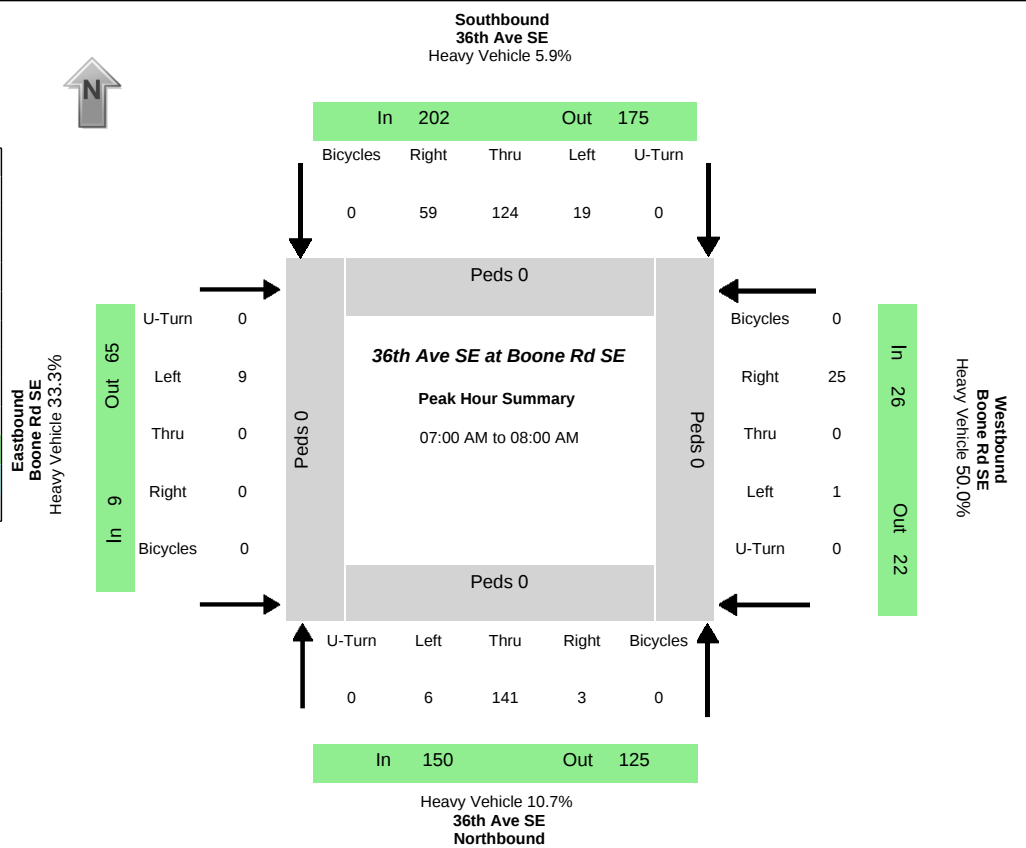
08:00:00 AM	4	4	3	0	1	1	7	0	24	63	13	0	3	63	22	0	613	2193
08:05:00 AM	4	0	4	0	5	1	1	0	10	35	7	0	4	38	18	0	557	2166
08:10:00 AM	4	1	4	0	2	2	2	0	6	58	2	0	1	46	9	0	472	2152
08:15:00 AM	4	0	3	0	6	1	1	0	7	33	4	0	4	38	12	0	377	2095
08:20:00 AM	5	1	1	0	3	3	4	0	6	30	2	0	6	48	20	0	379	2069
08:25:00 AM	1	2	1	0	5	2	6	0	20	49	7	0	5	42	15	0	397	2053
08:30:00 AM	6	0	4	0	5	0	5	0	14	42	2	0	3	57	10	0	432	2012
08:35:00 AM	8	3	4	0	4	1	7	0	10	52	7	0	4	38	5	0	446	1972
08:40:00 AM	5	1	2	0	7	1	4	0	13	41	7	0	1	49	10	0	432	1911
08:45:00 AM	6	0	4	0	2	1	4	0	10	51	4	0	3	55	11	0	435	1857
08:50:00 AM	6	3	4	0	4	3	6	0	4	52	7	0	3	51	9	0	444	1826
08:55:00 AM	5	0	3	0	5	2	4	0	10	47	6	0	1	32	8	0	426	1727

Data Provided by K-D-N.com 503-594-4224	
N/S street	36th Ave SE
E/W street	Boone Rd SE
City, State	Salem OR
Site Notes	
Location	44.882784 - -122.98875
Start Date	Tuesday, November 19, 2019
Start Time	03:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:10:00 PM
Peak 15 Min Start	04:55:00 PM
PHF (15-Min Int)	0.84



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
1	161	0	0	18	131	41	0	76	2	5	0	2	0	18	0	162	190	83	20	138	255	42	20
Percent Heavy Vehicles																							
0.0%	8.1%	0.0%	0.0%	66.7%	8.4%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	50.0%	0.0%	5.6%	0.0%	8.0%	12.1%	1.2%	10.0%	8.7%	5.9%	0.0%	60.0%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
All Vehicle Volumes																							
Time	Northbound 36th Ave SE				Southbound 36th Ave SE				Eastbound Boone Rd SE				Westbound Boone Rd SE				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
03:00:00 PM	1	9	1	0	2	8	2	0	6	0	0	0	0	0	1	0							
03:05:00 PM	0	7	1	0	0	10	2	0	2	0	1	0	0	0	1	0							
03:10:00 PM	0	1	1	0	3	8	2	0	4	0	0	0	1	0	0	0	74						
03:15:00 PM	0	9	0	0	4	9	4	0	2	0	0	0	0	0	3	0	75						
03:20:00 PM	0	11	0	0	4	5	3	0	6	0	0	0	0	0	1	0	81						
03:25:00 PM	0	13	1	0	1	10	6	0	2	0	0	0	0	0	5	0	99						
03:30:00 PM	0	7	0	0	8	10	9	0	4	1	1	0	0	0	3	0	111						
03:35:00 PM	2	14	0	0	1	11	5	0	2	0	0	0	0	1	4	0	121						
03:40:00 PM	0	10	0	0	2	12	4	0	5	1	0	0	0	0	3	0	120						
03:45:00 PM	0	13	0	0	2	6	4	0	4	0	1	0	0	0	2	0	109						
03:50:00 PM	0	5	0	0	1	6	5	0	8	0	0	0	0	0	2	0	96						
03:55:00 PM	0	6	0	0	0	14	8	0	4	0	0	0	1	0	2	0	94	387					
04:00:00 PM	0	7	1	0	5	14	0	0	4	0	0	0	0	0	4	0	97	392					
04:05:00 PM	0	8	0	0	1	10	6	0	6	0	0	0	0	0	2	0	103	401					
04:10:00 PM	0	11	0	0	2	11	4	0	4	0	0	0	0	0	3	0	103	416					
04:15:00 PM	0	12	0	0	7	13	4	0	6	0	0	0	1	0	2	0	113	430					
04:20:00 PM	1	4	0	0	0	16	5	0	3	2	0	0	0	0	2	0	113	433					
04:25:00 PM	0	13	0	0	0	10	3	0	3	0	1	0	0	0	2	0	110	427					
04:30:00 PM	0	15	0	0	3	3	4	0	4	0	1	0	1	0	4	0	100	419					
04:35:00 PM	0	9	0	0	1	15	3	0	7	0	0	0	0	0	0	0	102	414					
04:40:00 PM	0	15	0	0	0	6	5	0	10	0	0	0	0	0	2	0	108	415					
04:45:00 PM	0	12	0	0	1	14	3	0	5	0	0	0	0	0	0	0	108	418					
04:50:00 PM	0	9	0	0	2	12	3	0	5	0	1	0	0	0	0	0	105	423					
04:55:00 PM	0	11	0	0	1	12	5	0	5	0	0	0	0	0	2	0	103	424					

Data Provided by K-D-N.com 503-594-4224	
N/S street	36th Ave SE
E/W street	Boone Rd SE
City, State	Salem OR
Site Notes	
Location	44.882784 - -122.98875
Start Date	Wednesday, November 20, 2019
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:00:00 AM
Peak 15 Min Start	07:45:00 AM
PHF (15-Min Int)	0.91

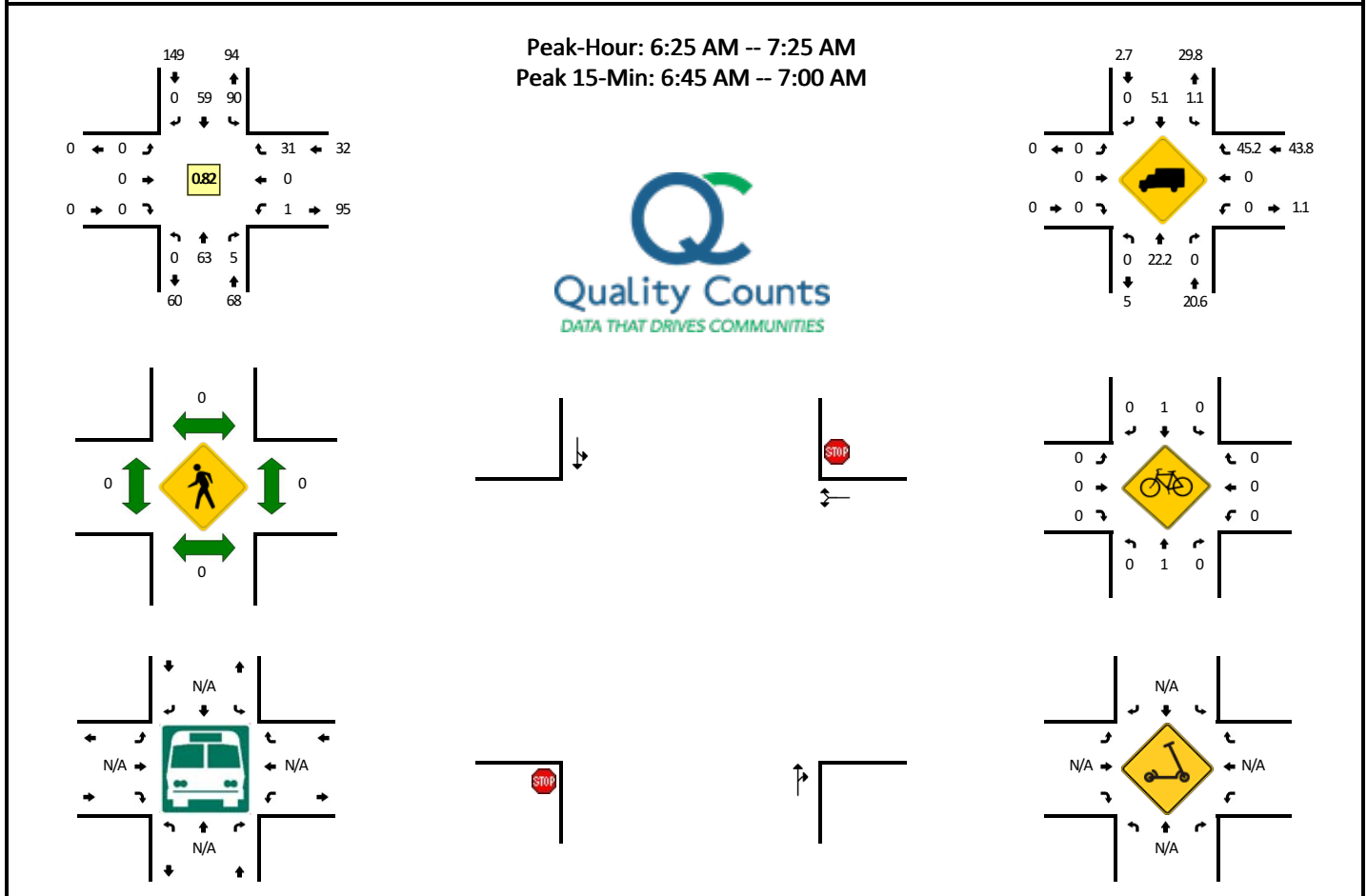


Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
6	141	3	0	19	124	59	0	9	0	0	0	1	0	25	0	150	202	9	26	125	175	65	22
Percent Heavy Vehicles																							
0.0%	11.3%	0.0%	0.0%	15.8%	6.5%	1.7%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	52.0%	0.0%	10.7%	5.9%	33.3%	50.0%	6.4%	18.3%	1.5%	13.6%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
All Vehicle Volumes																							
Time	Northbound 36th Ave SE				Southbound 36th Ave SE				Eastbound Boone Rd SE				Westbound Boone Rd SE				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	0	5	0	0	3	10	3	0	1	0	0	0	0	0	0	0	0						
06:05:00 AM	0	6	0	0	0	4	2	0	3	1	0	0	0	0	0	0	0						
06:10:00 AM	0	2	0	0	2	8	1	0	1	0	0	0	0	0	2	0	54						
06:15:00 AM	0	3	0	0	1	4	2	0	2	0	0	0	0	0	2	0	46						
06:20:00 AM	0	2	0	0	0	9	1	0	3	0	0	0	0	0	3	0	48						
06:25:00 AM	0	4	0	0	0	14	0	0	2	0	0	0	1	0	7	0	60						
06:30:00 AM	0	4	0	0	2	10	0	0	1	0	0	0	0	0	0	0	63						
06:35:00 AM	0	12	0	0	3	12	3	0	2	0	0	0	0	0	4	0	81						
06:40:00 AM	1	11	0	0	3	15	2	0	1	0	1	0	0	0	1	0	88						
06:45:00 AM	0	6	0	0	1	14	0	0	0	0	0	0	0	0	1	0	93						
06:50:00 AM	0	8	0	0	0	17	3	0	0	0	0	0	0	0	0	0	85						
06:55:00 AM	0	8	0	0	2	21	4	0	1	0	0	0	0	0	1	0	87	289					
07:00:00 AM	0	12	0	0	4	20	0	0	0	0	0	0	0	0	0	0	101	303					
07:05:00 AM	0	13	0	0	0	22	3	0	1	0	0	0	0	0	2	0	114	328					
07:10:00 AM	0	11	1	0	3	9	2	0	0	0	0	0	0	0	0	0	103	338					
07:15:00 AM	0	12	0	0	3	11	2	0	1	0	0	0	0	0	2	0	98	355					
07:20:00 AM	0	6	1	0	0	5	6	0	1	0	0	0	1	0	4	0	81	361					
07:25:00 AM	0	10	0	0	0	6	4	0	1	0	0	0	0	0	3	0	79	357					
07:30:00 AM	0	14	0	0	3	13	2	0	2	0	0	0	0	0	1	0	83	375					
07:35:00 AM	0	16	0	0	2	7	5	0	0	0	0	0	0	0	2	0	91	371					
07:40:00 AM	1	9	1	0	1	12	3	0	1	0	0	0	0	0	4	0	99	368					
07:45:00 AM	1	16	0	0	0	4	9	0	0	0	0	0	0	0	3	0	97	379					
07:50:00 AM	3	8	0	0	2	5	13	0	1	0	0	0	0	0	2	0	99	385					
07:55:00 AM	1	14	0	0	1	10	10	0	1	0	0	0	0	0	2	0	106	387					

08:00:00 AM	0	11	0	0	1	8	2	0	1	0	0	0	0	0	0	0	0	96	374
08:05:00 AM	0	6	1	0	2	6	6	0	0	0	0	0	0	0	0	0	0	83	354
08:10:00 AM	0	5	0	0	1	3	1	0	4	0	0	0	0	0	2	0	0	60	344
08:15:00 AM	0	3	0	0	1	3	4	0	0	0	0	0	0	0	2	0	0	50	326
08:20:00 AM	0	7	0	0	0	8	3	0	0	0	0	0	0	0	1	0	0	48	321
08:25:00 AM	0	3	0	0	3	8	4	0	3	0	0	0	0	0	1	0	0	54	319
08:30:00 AM	0	9	0	0	0	1	2	0	0	0	0	0	0	0	2	0	0	55	298
08:35:00 AM	0	10	0	0	3	6	4	0	0	0	0	0	0	0	0	0	0	59	289
08:40:00 AM	0	5	0	0	3	3	3	0	0	0	0	0	0	0	2	0	0	53	273
08:45:00 AM	0	10	0	0	2	2	4	0	2	0	1	0	0	0	1	0	0	61	262
08:50:00 AM	0	6	0	0	1	6	5	0	4	1	0	0	0	0	1	0	0	62	252
08:55:00 AM	0	4	0	0	0	3	6	0	1	0	0	0	0	0	2	0	0	62	229

LOCATION: 36th Ave SE -- Kashmir Way SE
CITY/STATE: Salem, OR

QC JOB #: 15621701
DATE: Tue, Nov 9 2021



5-Min Count Period Beginning At	36th Ave SE (Northbound)				36th Ave SE (Southbound)				Kashmir Way SE (Eastbound)				Kashmir Way SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	8	
6:05 AM	0	7	0	0	6	2	0	0	0	0	0	0	0	0	1	0	16	
6:10 AM	0	2	0	0	2	2	0	0	0	0	0	0	0	0	3	0	9	
6:15 AM	0	5	0	0	1	10	0	0	0	0	0	0	0	0	3	0	19	
6:20 AM	0	4	0	0	2	5	0	0	0	0	0	0	0	0	0	0	11	
6:25 AM	0	5	1	0	10	7	0	0	0	0	0	0	0	0	2	0	25	
6:30 AM	0	7	0	0	6	5	0	0	0	0	0	0	0	0	1	0	19	
6:35 AM	0	5	0	0	3	6	0	0	0	0	0	0	0	0	2	0	16	
6:40 AM	0	6	0	0	10	2	0	0	0	0	0	0	0	0	0	0	18	
6:45 AM	0	6	2	0	11	8	0	0	0	0	0	0	0	0	1	0	28	
6:50 AM	0	4	0	0	10	2	0	0	0	0	0	0	0	0	5	0	21	
6:55 AM	0	2	1	0	13	9	0	0	0	0	0	0	0	0	2	0	27	217
7:00 AM	0	5	0	0	10	8	0	0	0	0	0	0	0	0	2	0	25	234
7:05 AM	0	4	0	0	2	2	0	0	0	0	0	0	0	0	0	0	8	226
7:10 AM	0	4	0	0	3	4	0	0	0	0	0	0	0	0	2	0	13	230
7:15 AM	0	5	0	0	10	5	0	0	0	0	0	0	0	0	3	0	23	234
7:20 AM	0	10	1	0	2	1	0	0	0	0	0	0	1	0	11	0	26	249
7:25 AM	0	6	0	0	2	4	0	0	0	0	0	0	0	0	4	0	16	240
7:30 AM	0	8	0	0	3	1	0	0	0	0	0	0	0	0	1	0	13	234
7:35 AM	0	7	0	0	4	0	0	0	0	0	0	0	0	0	3	0	14	232
7:40 AM	0	4	1	0	3	3	0	0	0	0	0	0	0	0	1	0	12	226
7:45 AM	0	13	1	0	5	5	0	0	0	0	0	0	0	0	2	0	26	224
7:50 AM	0	5	1	0	1	6	0	0	0	0	0	0	3	0	3	0	19	222
7:55 AM	0	5	1	0	9	1	0	0	0	0	0	0	1	0	5	0	22	217
8:00 AM	0	5	0	0	2	3	0	0	0	0	0	0	0	0	5	0	15	207
8:05 AM	0	5	0	0	3	3	0	0	0	0	0	0	0	0	3	0	14	213
8:10 AM	0	6	0	0	1	2	0	0	0	0	0	0	0	0	9	0	18	218
8:15 AM	0	4	0	0	7	6	0	0	0	0	0	0	0	0	2	0	19	214
8:20 AM	0	5	0	0	3	5	0	0	0	0	0	0	2	0	4	0	19	207
8:25 AM	0	5	0	0	0	2	0	0	0	0	0	0	0	0	5	0	12	203
8:30 AM	0	5	0	0	5	4	0	0	0	0	0	0	0	0	1	0	15	205
8:35 AM	0	3	1	0	3	5	0	0	0	0	0	0	1	0	2	0	15	206
8:40 AM	0	2	1	0	4	1	0	0	0	0	0	0	0	0	1	0	9	203
8:45 AM	0	3	0	0	3	3	0	0	0	0	0	0	0	0	3	0	12	189
8:50 AM	0	5	0	0	1	5	0	0	0	0	0	0	1	0	2	0	14	184
8:55 AM	0	3	0	0	3	2	0	0	0	0	0	0	0	0	3	0	11	173

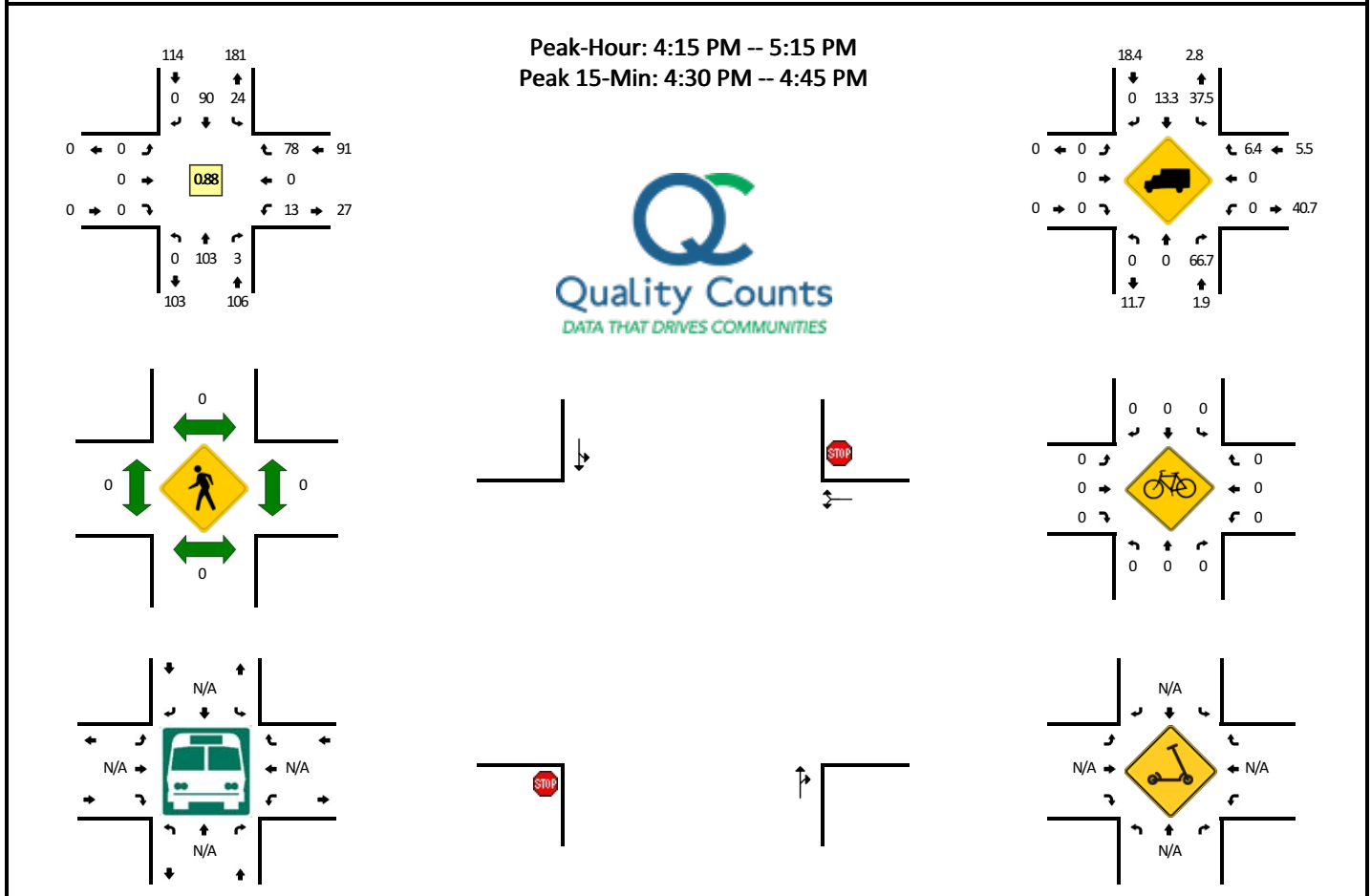
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	48	12	0	136	76	0	0	0	0	0	0	0	0	32	0	304
Heavy Trucks	0	0	0		0	4	0		0	0	0		0	0	16		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	
<i>Comments:</i>																	

Report generated on 11/12/2021 1:18 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

LOCATION: 36th Ave SE -- Kashmir Way SE
CITY/STATE: Salem, OR

QC JOB #: 15621702
DATE: Tue, Nov 9 2021



5-Min Count Period Beginning At	36th Ave SE (Northbound)				36th Ave SE (Southbound)				Kashmir Way SE (Eastbound)				Kashmir Way SE (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	3	0	0	3	3	0	0	0	0	0	0	0	0	2	0	11	
3:05 PM	0	5	0	0	2	5	0	0	0	0	0	0	0	0	6	0	18	
3:10 PM	0	9	0	0	1	5	0	0	0	0	0	0	1	0	3	0	19	
3:15 PM	0	6	0	0	3	4	0	0	0	0	0	0	0	0	4	0	17	
3:20 PM	0	5	0	0	0	10	0	0	0	0	0	0	1	0	1	0	17	
3:25 PM	0	5	1	0	2	7	0	0	0	0	0	0	0	0	4	0	19	
3:30 PM	0	2	0	0	4	5	0	0	0	0	0	0	0	0	3	0	14	
3:35 PM	0	2	0	0	0	10	0	0	0	0	0	0	0	0	1	0	13	
3:40 PM	0	4	0	0	1	7	0	0	0	0	0	0	0	0	3	0	15	
3:45 PM	0	6	1	0	2	14	0	0	0	0	0	0	1	0	0	0	24	
3:50 PM	0	4	0	0	2	9	0	0	0	0	0	0	1	0	1	0	17	
3:55 PM	0	10	0	0	4	8	0	0	0	0	0	0	0	0	5	0	27	211
4:00 PM	0	2	0	0	6	6	0	0	0	0	0	0	0	0	10	0	24	224
4:05 PM	0	7	0	0	5	6	0	0	0	0	0	0	1	0	3	0	22	228
4:10 PM	0	8	0	0	5	4	0	0	0	0	0	0	1	0	1	0	19	228
4:15 PM	0	5	0	0	3	4	0	0	0	0	0	0	1	0	10	0	23	234
4:20 PM	0	7	0	0	5	8	0	0	0	0	0	0	2	0	4	0	26	243
4:25 PM	0	4	0	0	1	7	0	0	0	0	0	0	2	0	6	0	20	244
4:30 PM	0	13	1	0	3	11	0	0	0	0	0	0	0	0	7	0	35	265
4:35 PM	0	10	1	0	2	8	0	0	0	0	0	0	1	0	2	0	24	276
4:40 PM	0	13	0	0	2	10	0	0	0	0	0	0	0	0	4	0	29	290
4:45 PM	0	7	1	0	1	5	0	0	0	0	0	0	1	0	7	0	22	288
4:50 PM	0	10	0	0	7	4	0	0	0	0	0	0	0	0	8	0	29	300
4:55 PM	0	9	0	0	0	11	0	0	0	0	0	0	2	0	3	0	25	298
5:00 PM	0	6	0	0	0	5	0	0	0	0	0	0	3	0	8	0	22	296
5:05 PM	0	5	0	0	0	5	0	0	0	0	0	0	0	0	15	0	25	299
5:10 PM	0	14	0	0	0	12	0	0	0	0	0	0	1	0	4	0	31	311
5:15 PM	0	3	0	0	1	6	0	0	0	0	0	0	0	0	3	0	13	301
5:20 PM	0	4	1	0	0	8	0	0	0	0	0	0	0	0	2	0	15	290
5:25 PM	0	1	0	0	2	4	0	0	0	0	0	0	1	0	2	0	10	280
5:30 PM	0	5	0	0	2	8	0	0	0	0	0	0	1	0	2	0	18	263
5:35 PM	0	2	0	0	0	13	0	0	0	0	0	0	0	0	1	0	16	255
5:40 PM	0	5	1	0	0	4	0	0	0	0	0	0	0	0	2	0	12	238
5:45 PM	0	4	0	0	2	1	0	0	0	0	0	0	0	0	0	0	7	223
5:50 PM	0	2	0	0	2	3	0	0	0	0	0	0	0	0	1	0	8	202
5:55 PM	0	2	0	0	2	5	0	0	0	0	0	0	0	0	2	0	11	188

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	144	8	0	28	116	0	0	0	0	0	0	4	0	52	0	352
Heavy Trucks	0	0	8		0	16	0		0	0	0		0	0	4		28
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	
<i>Comments:</i>																	

APPENDIX C:

SYNCHRO REPORTS – 2021 EXISTING AM + PM

HCM Signalized Intersection Capacity Analysis

1: I-5 SB & Kuelber Blvd/Kuebler Blvd

11/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↗		↗↗
Traffic Volume (vph)	0	1771	65	0	545	115	0	0	0	161	0	848
Future Volume (vph)	0	1771	65	0	545	115	0	0	0	161	0	848
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	6.0		6.0	6.0				5.0		5.0
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3353	1500		3320	1485				1629		2565
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3353	1500		3320	1485				1629		2565
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	2012	74	0	619	131	0	0	0	183	0	964
RTOR Reduction (vph)	0	0	23	0	0	41	0	0	0	0	0	413
Lane Group Flow (vph)	0	2013	51	0	619	90	0	0	0	183	0	551
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Turn Type		NA	Prot		NA	Prot				Perm		Perm
Protected Phases		2	2		6	6						
Permitted Phases										8		8
Actuated Green, G (s)		89.1	89.1		89.1	89.1				29.9		29.9
Effective Green, g (s)		89.1	89.1		89.1	89.1				29.9		29.9
Actuated g/C Ratio		0.69	0.69		0.69	0.69				0.23		0.23
Clearance Time (s)		6.0	6.0		6.0	6.0				5.0		5.0
Vehicle Extension (s)		0.5	0.5		0.5	0.5				0.5		0.5
Lane Grp Cap (vph)		2298	1028		2275	1017				374		589
v/s Ratio Prot		c0.60	0.03		0.19	0.06						
v/s Ratio Perm										0.11		c0.21
v/c Ratio		0.88	0.05		0.27	0.09				0.49		0.93
Uniform Delay, d1		16.1	6.7		7.9	6.8				43.4		49.1
Progression Factor		1.00	1.00		0.47	0.46				1.00		1.00
Incremental Delay, d2		5.1	0.1		0.3	0.2				0.4		21.9
Delay (s)		21.2	6.7		4.0	3.3				43.8		71.0
Level of Service		C	A		A	A				D		E
Approach Delay (s)		20.7			3.9			0.0			66.6	
Approach LOS		C			A			A			E	
Intersection Summary												
HCM 2000 Control Delay			30.7									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			130.0							11.0		
Intersection Capacity Utilization			69.4%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1: I-5 SB & Kuelber Blvd/Kuebler Blvd

11/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑↑
Traffic Volume (vph)	0	1379	116	0	772	239	0	0	0	95	0	1331
Future Volume (vph)	0	1379	116	0	772	239	0	0	0	95	0	1331
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	6.0		6.0	6.0				5.5		5.5
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3353	1500		3386	1515				1693		2666
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3353	1500		3386	1515				1693		2666
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1452	122	0	813	252	0	0	0	100	0	1401
RTOR Reduction (vph)	0	0	45	0	0	93	0	0	0	0	0	255
Lane Group Flow (vph)	0	1452	77	0	813	159	0	0	0	100	0	1146
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Turn Type		NA	Prot		NA	Prot				Prot		Prot
Protected Phases		2	2		6	6				8		8
Permitted Phases												
Actuated Green, G (s)		82.0	82.0		82.0	82.0				36.5		36.5
Effective Green, g (s)		82.0	82.0		82.0	82.0				36.5		36.5
Actuated g/C Ratio		0.63	0.63		0.63	0.63				0.28		0.28
Clearance Time (s)		6.0	6.0		6.0	6.0				5.5		5.5
Vehicle Extension (s)		0.5	0.5		0.5	0.5				3.0		3.0
Lane Grp Cap (vph)		2114	946		2135	955				475		748
v/s Ratio Prot		c0.43	0.05		0.24	0.10				0.06		c0.43
v/s Ratio Perm												
v/c Ratio		0.69	0.08		0.38	0.17				0.21		1.53
Uniform Delay, d1		15.6	9.3		11.7	9.9				35.7		46.8
Progression Factor		1.00	1.00		1.88	7.55				1.00		1.00
Incremental Delay, d2		1.8	0.2		0.4	0.3				0.2		246.0
Delay (s)		17.5	9.5		22.4	75.1				36.0		292.7
Level of Service		B	A		C	E				D		F
Approach Delay (s)		16.9			34.8			0.0			275.6	
Approach LOS		B			C			A			F	
Intersection Summary												
HCM 2000 Control Delay		115.3			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		0.95										
Actuated Cycle Length (s)		130.0			Sum of lost time (s)			11.5				
Intersection Capacity Utilization		81.3%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: I-5 NB & Kuebler Blvd

11/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑			↗	↗			
Traffic Volume (vph)	0	727	1219	0	569	145	93	1	337	0	0	0
Future Volume (vph)	0	727	1219	0	569	145	93	1	337	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	6.0		6.0			5.0	5.0			
Lane Util. Factor		0.95	1.00		0.95			1.00	1.00			
Frt		1.00	0.85		0.97			1.00	0.85			
Flt Protected		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (prot)		3353	1500		3014			1484	1471			
Flt Permitted		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (perm)		3353	1500		3014			1484	1471			
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	826	1385	0	647	165	106	1	383	0	0	0
RTOR Reduction (vph)	0	0	238	0	14	0	0	0	213	0	0	0
Lane Group Flow (vph)	0	826	1147	0	798	0	0	107	170	0	0	0
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	4%	4%	4%	2%	2%	2%
Parking (#/hr)								0				
Turn Type		NA	Perm		NA		Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			2				8		8			
Actuated Green, G (s)		101.7	101.7		101.7			17.3	17.3			
Effective Green, g (s)		101.7	101.7		101.7			17.3	17.3			
Actuated g/C Ratio		0.78	0.78		0.78			0.13	0.13			
Clearance Time (s)		6.0	6.0		6.0			5.0	5.0			
Vehicle Extension (s)		0.5	0.5		0.5			0.5	0.5			
Lane Grp Cap (vph)		2623	1173		2357			197	195			
v/s Ratio Prot		0.25			0.26							
v/s Ratio Perm			c0.76					0.07	c0.12			
v/c Ratio		0.31	0.98		0.34			0.54	0.87			
Uniform Delay, d1		4.1	13.1		4.2			52.7	55.3			
Progression Factor		1.14	6.43		0.15			1.00	1.00			
Incremental Delay, d2		0.2	14.6		0.0			1.6	31.0			
Delay (s)		4.8	99.0		0.7			54.3	86.3			
Level of Service		A	F		A			D	F			
Approach Delay (s)		63.8			0.7			79.3			0.0	
Approach LOS		E			A			E			A	
Intersection Summary												
HCM 2000 Control Delay			51.4									
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			130.0									
Intersection Capacity Utilization			84.7%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: I-5 NB & Kuebler Blvd

11/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑			↗	↗			
Traffic Volume (vph)	0	612	915	0	961	312	63	1	145	0	0	0
Future Volume (vph)	0	612	915	0	961	312	63	1	145	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	4.0		6.0			5.0	5.0			
Lane Util. Factor		0.95	1.00		0.95			1.00	1.00			
Frt		1.00	0.85		0.96			1.00	0.85			
Flt Protected		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (prot)		3320	1485		3230			1443	1430			
Flt Permitted		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (perm)		3320	1485		3230			1443	1430			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	644	963	0	1012	328	66	1	153	0	0	0
RTOR Reduction (vph)	0	0	0	0	11	0	0	0	142	0	0	0
Lane Group Flow (vph)	0	644	963	0	1329	0	0	67	11	0	0	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	7%	7%	7%	2%	2%	2%
Parking (#/hr)								0				
Turn Type		NA	Free		NA		Split	NA	Perm			
Protected Phases		2			6		8	8				
Permitted Phases			Free						8			
Actuated Green, G (s)		109.6	130.0		109.6			9.4	9.4			
Effective Green, g (s)		109.6	130.0		109.6			9.4	9.4			
Actuated g/C Ratio		0.84	1.00		0.84			0.07	0.07			
Clearance Time (s)		6.0			6.0			5.0	5.0			
Vehicle Extension (s)		0.5			0.5			0.5	0.5			
Lane Grp Cap (vph)		2799	1485		2723			104	103			
v/s Ratio Prot		0.19			0.41			0.05				
v/s Ratio Perm			c0.65						0.01			
v/c Ratio		0.23	0.65		0.49			0.64	0.11			
Uniform Delay, d1		2.0	0.0		2.7			58.7	56.4			
Progression Factor		1.87	1.00		3.98			1.00	1.00			
Incremental Delay, d2		0.1	1.7		0.1			9.8	0.2			
Delay (s)		3.9	1.7		10.9			68.5	56.5			
Level of Service		A	A		B			E	E			
Approach Delay (s)		2.6			10.9			60.2			0.0	
Approach LOS		A			B			E			A	
Intersection Summary												
HCM 2000 Control Delay			10.1		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				11.0			
Intersection Capacity Utilization			52.7%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 36th Ave SE & Kuebler Blvd

11/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	745	116	71	604	224	83	46	51	19	15	40
Future Volume (vph)	222	745	116	71	604	224	83	46	51	19	15	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0		4.5	4.0		4.5	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1480	1558	1324	1438	1453		1327	1287		1338	1409	1197
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1480	1558	1324	1438	1453		1327	1287		1338	1409	1197
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	249	837	130	80	679	252	93	52	57	21	17	45
RTOR Reduction (vph)	0	0	50	0	9	0	0	23	0	0	0	33
Lane Group Flow (vph)	249	837	80	80	922	0	93	86	0	21	17	12
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	16%	16%	16%	15%	15%	15%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									4
Actuated Green, G (s)	27.5	52.5	52.5	11.2	36.2		14.4	43.0		5.3	33.9	33.9
Effective Green, g (s)	27.5	52.5	52.5	11.2	36.2		14.4	43.0		5.3	33.9	33.9
Actuated g/C Ratio	0.21	0.40	0.40	0.09	0.28		0.11	0.33		0.04	0.26	0.26
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0		4.5	4.0		4.5	4.0	4.0
Vehicle Extension (s)	3.0	0.5	0.5	3.0	0.5		3.0	0.5		3.0	0.5	0.5
Lane Grp Cap (vph)	313	629	534	123	404		146	425		54	367	312
v/s Ratio Prot	c0.17	c0.54		0.06	c0.63		c0.07	c0.07		0.02	0.01	
v/s Ratio Perm			0.06									0.01
v/c Ratio	0.80	1.33	0.15	0.65	2.28		0.64	0.20		0.39	0.05	0.04
Uniform Delay, d1	48.6	38.8	24.6	57.5	46.9		55.3	31.2		60.8	36.0	35.9
Progression Factor	0.96	1.03	1.10	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	11.9	158.5	0.5	11.7	585.2		8.8	0.1		4.6	0.2	0.2
Delay (s)	58.5	198.5	27.5	69.2	632.1		64.1	31.3		65.4	36.2	36.1
Level of Service	E	F	C	E	F		E	C		E	D	D
Approach Delay (s)		151.5			587.5			46.4			43.5	
Approach LOS		F			F			D			D	
Intersection Summary												
HCM 2000 Control Delay			315.0			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.14									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			91.0%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 36th Ave SE & Kuebler Blvd

11/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	655	77	58	840	35	155	17	93	179	36	269
Future Volume (vph)	43	655	77	58	840	35	155	17	93	179	36	269
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.5	4.0		4.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.91		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1452	1528	1299	1494	1563		1480	1418		1509	1588	1350
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1452	1528	1299	1494	1563		1480	1418		1509	1588	1350
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	712	84	63	913	38	168	68	101	195	39	292
RTOR Reduction (vph)	0	0	50	0	1	0	0	36	0	0	0	181
Lane Group Flow (vph)	47	712	34	63	950	0	168	133	0	195	39	111
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									6
Actuated Green, G (s)	8.5	48.3	48.3	9.7	49.5		20.1	32.9		22.1	34.4	49.5
Effective Green, g (s)	8.5	48.3	48.3	9.7	49.5		20.1	32.9		22.1	34.4	49.5
Actuated g/C Ratio	0.07	0.37	0.37	0.07	0.38		0.15	0.25		0.17	0.26	0.38
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.5	4.0		4.0	4.0	5.0
Vehicle Extension (s)	3.0	0.5	0.5	3.0	0.5		3.0	0.5		3.0	0.5	0.5
Lane Grp Cap (vph)	94	567	482	111	595		228	358		256	420	514
v/s Ratio Prot	0.03	0.47		c0.04	c0.61		0.11	c0.09		c0.13	0.02	
v/s Ratio Perm			0.03									0.08
v/c Ratio	0.50	1.26	0.07	0.57	1.60		0.74	0.37		0.76	0.09	0.22
Uniform Delay, d1	58.7	40.9	26.4	58.1	40.2		52.4	40.0		51.4	36.0	27.2
Progression Factor	0.77	1.46	2.52	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.1	128.8	0.3	6.5	276.6		11.7	0.2		12.6	0.4	1.0
Delay (s)	49.1	188.5	66.7	64.6	316.9		64.1	40.3		64.0	36.5	28.1
Level of Service	D	F	E	E	F		E	D		E	D	C
Approach Delay (s)		168.6			301.2			52.2			42.0	
Approach LOS		F			F			D			D	
Intersection Summary												
HCM 2000 Control Delay			179.1			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			17.5			
Intersection Capacity Utilization			95.6%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th TWSC
5: 36th Ave SE & Boone Rd SE

11/17/2021

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	1	1	1	1	26	6	143	3	16	114	62
Future Vol, veh/h	10	1	1	1	1	26	6	143	3	16	114	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	17	17	17	7	7	7	10	10	10
Mvmt Flow	12	1	1	1	1	32	7	174	4	20	139	76
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	424	409	177	408	445	176	215	0	0	178	0	0
Stage 1	217	217	-	190	190	-	-	-	-	-	-	-
Stage 2	207	192	-	218	255	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.27	6.67	6.37	4.17	-	-	4.2	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.653	4.153	3.453	2.263	-	-	2.29	-	-
Pot Cap-1 Maneuver	542	534	869	528	486	830	1326	-	-	1351	-	-
Stage 1	788	725	-	778	716	-	-	-	-	-	-	-
Stage 2	797	743	-	751	670	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	511	522	869	517	475	830	1326	-	-	1351	-	-
Mov Cap-2 Maneuver	511	522	-	517	475	-	-	-	-	-	-	-
Stage 1	783	713	-	773	712	-	-	-	-	-	-	-
Stage 2	761	739	-	736	659	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12		9.8		0.3		0.6					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1326	-	-	530	792	1351	-	-				
HCM Lane V/C Ratio	0.006	-	-	0.028	0.043	0.014	-	-				
HCM Control Delay (s)	7.7	0	-	12	9.8	7.7	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-				

HCM 6th TWSC
5: 36th Ave SE & Boone Rd SE

11/16/2021

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	126	1	8	1	1	12	4	173	1	12	126	92
Future Vol, veh/h	126	1	8	1	1	12	4	173	1	12	126	92
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	1	1	1	17	17	17	7	7	7	10	10	10
Mvmt Flow	156	1	10	1	1	15	5	214	1	15	156	114
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	476	468	213	474	525	215	270	0	0	215	0	0
Stage 1	243	243	-	225	225	-	-	-	-	-	-	-
Stage 2	233	225	-	249	300	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.27	6.67	6.37	4.17	-	-	4.2	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.653	4.153	3.453	2.263	-	-	2.29	-	-
Pot Cap-1 Maneuver	501	494	830	477	437	789	1265	-	-	1309	-	-
Stage 1	763	707	-	745	691	-	-	-	-	-	-	-
Stage 2	772	719	-	723	639	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	484	485	830	464	429	789	1265	-	-	1309	-	-
Mov Cap-2 Maneuver	484	485	-	464	429	-	-	-	-	-	-	-
Stage 1	760	697	-	742	688	-	-	-	-	-	-	-
Stage 2	753	716	-	703	630	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	15.9		10.2		0.2		0.4					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1265	-	-	496	711	1309	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.336	0.024	0.011	-	-				
HCM Control Delay (s)	7.9	0	-	15.9	10.2	7.8	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	1.5	0.1	0	-	-				

HCM 6th TWSC
8: 36th Ave SE & Kashmir Way SE

11/16/2021

Intersection

Int Delay, s/veh 3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	40	76	5	46	35
Future Vol, veh/h	5	40	76	5	46	35
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	31	31	17	17	6	6
Mvmt Flow	6	52	99	6	60	45

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	269	104	0
Stage 1	104	-	-
Stage 2	165	-	-
Critical Hdwy	6.71	6.51	-
Critical Hdwy Stg 1	5.71	-	-
Critical Hdwy Stg 2	5.71	-	-
Follow-up Hdwy	3.779	3.579	-
Pot Cap-1 Maneuver	662	877	-
Stage 1	853	-	-
Stage 2	799	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	633	875	-
Mov Cap-2 Maneuver	633	-	-
Stage 1	851	-	-
Stage 2	765	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	4.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	839	1456
HCM Lane V/C Ratio	-	-	0.07	0.041
HCM Control Delay (s)	-	-	9.6	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

HCM 6th TWSC
8: 36th Ave SE & Kashmir Way SE

11/16/2021

Intersection

Int Delay, s/veh 2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	66	101	4	18	94
Future Vol, veh/h	9	66	101	4	18	94
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	4	3	3	15	15
Mvmt Flow	11	83	126	5	23	118

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	295	131	0
Stage 1	131	-	-
Stage 2	164	-	-
Critical Hdwy	6.44	6.24	-
Critical Hdwy Stg 1	5.44	-	-
Critical Hdwy Stg 2	5.44	-	-
Follow-up Hdwy	3.536	3.336	-
Pot Cap-1 Maneuver	692	913	-
Stage 1	890	-	-
Stage 2	860	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	678	911	-
Mov Cap-2 Maneuver	678	-	-
Stage 1	888	-	-
Stage 2	845	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	875	1372
HCM Lane V/C Ratio	-	-	0.107	0.016
HCM Control Delay (s)	-	-	9.6	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

APPENDIX D: CRASH DATA REPORTS

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

KUEBLER BLVD at SB EF KUEBLER BV C5, City of Salem, Marion County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL CRASHES	NON - FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2016														
REAR-END	0	1	0	1	0	1	1	0	1	0	1	1	0	0
YEAR 2016 TOTAL	0	1	0	1	0	1	1	0	1	0	1	1	0	0
YEAR: 2015														
REAR-END	0	1	0	1	0	2	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	2	0	2	0	4	1	2	0	2	0	2	0	0
YEAR 2015 TOTAL	0	3	0	3	0	6	1	3	0	3	0	3	0	0
FINAL TOTAL	0	4	0	4	0	7	2	3	1	3	1	4	0	0

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
KUEBLER BLVD at SB EF KUEBLER EB C9, City of Salem, Marion County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL CRASHES	NON - FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
FINAL TOTAL														

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
KUEBLER BLVD at SB EF KUEBLER WB C8, City of Salem, Marion County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL	NON -	PROPERTY	TOTAL	PEOPLE	PEOPLE	TRUCKS	DRY	WET	DAY	DARK	INTER-	SECTION	OFF -
	CRASHES	FATAL	DAMAGE											
FINAL TOTAL		CRASHES	ONLY	CRASHES	KILLED	INJURED		SURF	SURF			SECTION	RELATED	ROAD

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

KUEBLER BLVD at SB EX KUEBLER BV C4, City of Salem, Marion County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL CRASHES	NON - FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2016														
REAR-END	0	0	2	2	0	0	0	1	1	1	1	2	0	0
TURNING MOVEMENTS	0	1	1	2	0	1	0	2	0	2	0	2	0	0
YEAR 2016 TOTAL	0	1	3	4	0	1	0	3	1	3	1	4	0	0
YEAR: 2015														
REAR-END	0	6	3	9	0	11	0	9	0	7	2	9	0	0
YEAR 2015 TOTAL	0	6	3	9	0	11	0	9	0	7	2	9	0	0
FINAL TOTAL	0	7	6	13	0	12	0	12	1	10	3	13	0	0

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11/16/2021

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

KUEBLER BLVD at SB EX KUEBLER BV C7, City of Salem, Marion County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL CRASHES	NON - FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2019														
REAR-END	0	2	1	3	0	2	0	2	1	1	2	3	0	0
YEAR 2019 TOTAL	0	2	1	3	0	2	0	2	1	1	2	3	0	0
YEAR: 2018														
REAR-END	0	3	2	5	0	6	0	5	0	4	1	5	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR 2018 TOTAL	0	3	3	6	0	6	0	6	0	5	1	6	0	0
YEAR: 2017														
REAR-END	0	2	2	4	0	2	0	3	1	3	1	4	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR 2017 TOTAL	0	2	3	5	0	2	0	4	1	4	1	5	0	0
FINAL TOTAL	0	7	7	14	0	10	0	12	2	10	4	14	0	0

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11/16/2021

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

KUEBLER BLVD at NB EF KUEBLER WB C6, City of Salem, Marion County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL CRASHES	NON - FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF - ROAD
YEAR: 2019														
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR 2019 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR: 2017														
REAR-END	0	1	1	2	0	4	0	2	0	1	1	2	0	0
YEAR 2017 TOTAL	0	1	1	2	0	4	0	2	0	1	1	2	0	0
FINAL TOTAL	0	2	1	3	0	5	0	3	0	2	1	3	0	0

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

11/16/2021

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

KUEBLER BLVD at NB EX KUEBLER BV C1, City of Salem, Marion County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2019														
REAR-END	0	2	2	4	0	3	0	2	2	2	2	4	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR 2019 TOTAL	0	2	3	5	0	3	0	3	2	3	2	5	0	0
YEAR: 2018														
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	0	1	1	0	0
YEAR 2018 TOTAL	0	1	0	1	0	1	0	1	0	0	1	1	0	0
YEAR: 2017														
REAR-END	0	2	0	2	0	5	0	2	0	1	1	2	0	0
YEAR 2017 TOTAL	0	2	0	2	0	5	0	2	0	1	1	2	0	0
YEAR: 2016														
REAR-END	0	1	1	2	0	1	0	1	0	2	0	2	0	0
YEAR 2016 TOTAL	0	1	1	2	0	1	0	1	0	2	0	2	0	0
YEAR: 2015														
REAR-END	0	1	0	1	0	1	0	0	1	1	0	1	0	0
TURNING MOVEMENTS	0	1	2	3	0	4	0	3	0	2	1	3	0	0
YEAR 2015 TOTAL	0	2	2	4	0	5	0	3	1	3	1	4	0	0
FINAL TOTAL	0	8	6	14	0	15	0	10	3	9	5	14	0	0

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
KUEBLER BLVD at NB EF KUEBLER EB C3, City of Salem, Marion County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL	NON -	PROPERTY	TOTAL	PEOPLE	PEOPLE	TRUCKS	DRY	WET	DAY	DARK	INTER-	INTER-	OFF -
	CRASHES	FATAL	DAMAGE									SECTION	SECTION	
		CRASHES	ONLY	CRASHES	KILLED	INJURED		SURF	SURF				RELATED	ROAD
FINAL TOTAL														

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

KUEBLER BLVD at 36TH AVE, City of Salem, Marion County, 01/01/2015 to 12/31/2019

[illegible]

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

KUEBLER BLVD at 36TH AVE, City of Salem, Marion County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL CRASHES	NON -	PROPERTY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF - ROAD
		FATAL CRASHES	DAMAGE ONLY											
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR 2015 TOTAL	0	2	1	3	0	2	0	3	0	3	0	3	0	0
FINAL TOTAL	0	12	7	19	0	18	0	15	4	14	5	19	0	1

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
36TH AVE at BOONE RD, City of Salem, Marion County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL CRASHES	NON - FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2019														
TURNING MOVEMENTS	0	0	1	1	0	0	1	0	1	1	0	1	0	0
YEAR 2019 TOTAL	0	0	1	1	0	0	1	0	1	1	0	1	0	0
YEAR: 2016														
ANGLE	0	0	1	1	0	0	0	0	1	0	1	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR 2016 TOTAL	0	0	2	2	0	0	0	1	1	1	1	2	0	0
YEAR: 2015														
TURNING MOVEMENTS	0	1	0	1	0	2	0	1	0	1	0	1	0	0
YEAR 2015 TOTAL	0	1	0	1	0	2	0	1	0	1	0	1	0	0
FINAL TOTAL	0	1	3	4	0	2	1	2	2	3	1	4	0	0

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

11/03/2021

TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

36TH AVE at KASHMIR WY, City of Salem, Marion County, 01/01/2015 to 12/31/2019

COLLISION TYPE	FATAL CRASHES	NON - FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
FINAL TOTAL														

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

APPENDIX E:
SYNCHRO REPORTS – 2025 BACKGROUND AM + PM

HCM Signalized Intersection Capacity Analysis

1: I-5 SB & Kuelber Blvd/Kuebler Blvd

11/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗				↗		↗↗
Traffic Volume (vph)	0	1846	68	0	577	124	0	0	0	174	0	882
Future Volume (vph)	0	1846	68	0	577	124	0	0	0	174	0	882
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	6.0		6.0	6.0				5.0		5.0
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3353	1500		3320	1485				1629		2565
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3353	1500		3320	1485				1629		2565
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	2098	77	0	656	141	0	0	0	198	0	1002
RTOR Reduction (vph)	0	0	26	0	0	48	0	0	0	0	0	369
Lane Group Flow (vph)	0	2098	51	0	656	93	0	0	0	198	0	633
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Turn Type		NA	Prot		NA	Prot				Perm		Perm
Protected Phases		2	2		6	6						
Permitted Phases										8		8
Actuated Green, G (s)		85.5	85.5		85.5	85.5				33.5		33.5
Effective Green, g (s)		85.5	85.5		85.5	85.5				33.5		33.5
Actuated g/C Ratio		0.66	0.66		0.66	0.66				0.26		0.26
Clearance Time (s)		6.0	6.0		6.0	6.0				5.0		5.0
Vehicle Extension (s)		0.5	0.5		0.5	0.5				0.5		0.5
Lane Grp Cap (vph)		2205	986		2183	976				419		660
v/s Ratio Prot		0.63	0.03		0.20	0.06						
v/s Ratio Perm										0.12		0.25
v/c Ratio		0.95	0.05		0.30	0.10				0.47		0.96
Uniform Delay, d1		20.4	7.9		9.5	8.1				40.8		47.6
Progression Factor		1.00	1.00		0.46	0.70				1.00		1.00
Incremental Delay, d2		10.7	0.1		0.3	0.2				0.3		24.8
Delay (s)		31.1	8.0		4.7	5.9				41.1		72.4
Level of Service		C	A		A	A				D		E
Approach Delay (s)		30.3			4.9			0.0			67.2	
Approach LOS		C			A			A			E	
Intersection Summary												
HCM 2000 Control Delay			36.1									HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			130.0							11.0		
Intersection Capacity Utilization			72.4%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1: I-5 SB & Kuelber Blvd/Kuebler Blvd

11/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑↑
Traffic Volume (vph)	0	1652	147	0	866	251	0	0	0	116	0	1582
Future Volume (vph)	0	1652	147	0	866	251	0	0	0	116	0	1582
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	6.0		6.0	6.0				5.5		5.5
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3353	1500		3386	1515				1693		2666
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3353	1500		3386	1515				1693		2666
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1739	155	0	912	264	0	0	0	122	0	1665
RTOR Reduction (vph)	0	0	57	0	0	97	0	0	0	0	0	206
Lane Group Flow (vph)	0	1739	98	0	912	167	0	0	0	122	0	1459
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Turn Type		NA	Prot		NA	Prot				Prot		Prot
Protected Phases		2	2		6	6				8		8
Permitted Phases												
Actuated Green, G (s)		82.0	82.0		82.0	82.0				36.5		36.5
Effective Green, g (s)		82.0	82.0		82.0	82.0				36.5		36.5
Actuated g/C Ratio		0.63	0.63		0.63	0.63				0.28		0.28
Clearance Time (s)		6.0	6.0		6.0	6.0				5.5		5.5
Vehicle Extension (s)		0.5	0.5		0.5	0.5				3.0		3.0
Lane Grp Cap (vph)		2114	946		2135	955				475		748
v/s Ratio Prot		c0.52	0.07		0.27	0.11				0.07		c0.55
v/s Ratio Perm												
v/c Ratio		0.82	0.10		0.43	0.17				0.26		1.95
Uniform Delay, d1		18.4	9.5		12.1	10.0				36.2		46.8
Progression Factor		1.00	1.00		2.04	8.18				1.00		1.00
Incremental Delay, d2		3.8	0.2		0.5	0.3				0.3		432.4
Delay (s)		22.2	9.7		25.3	81.8				36.5		479.1
Level of Service		C	A		C	F				D		F
Approach Delay (s)		21.2			38.0			0.0			448.9	
Approach LOS		C			D			A			F	
Intersection Summary												
HCM 2000 Control Delay		182.6			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.17										
Actuated Cycle Length (s)		130.0			Sum of lost time (s)			11.5				
Intersection Capacity Utilization		93.3%			ICU Level of Service			F				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: I-5 NB & Kuebler Blvd

11/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑			↗	↗			
Traffic Volume (vph)	0	766	1268	0	607	168	97	1	351	0	0	0
Future Volume (vph)	0	766	1268	0	607	168	97	1	351	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	6.0		6.0			5.0	5.0			
Lane Util. Factor		0.95	1.00		0.95			1.00	1.00			
Frt		1.00	0.85		0.97			1.00	0.85			
Flt Protected		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (prot)		3353	1500		3008			1484	1471			
Flt Permitted		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (perm)		3353	1500		3008			1484	1471			
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	870	1441	0	690	191	110	1	399	0	0	0
RTOR Reduction (vph)	0	0	258	0	17	0	0	0	192	0	0	0
Lane Group Flow (vph)	0	870	1183	0	864	0	0	111	207	0	0	0
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	4%	4%	4%	2%	2%	2%
Parking (#/hr)								0				
Turn Type		NA	Perm		NA		Perm	NA	Perm			
Protected Phases		2			6			8				
Permitted Phases			2				8		8			
Actuated Green, G (s)		99.2	99.2		99.2			19.8	19.8			
Effective Green, g (s)		99.2	99.2		99.2			19.8	19.8			
Actuated g/C Ratio		0.76	0.76		0.76			0.15	0.15			
Clearance Time (s)		6.0	6.0		6.0			5.0	5.0			
Vehicle Extension (s)		0.5	0.5		0.5			0.5	0.5			
Lane Grp Cap (vph)		2558	1144		2295			226	224			
v/s Ratio Prot		0.26			0.29							
v/s Ratio Perm			c0.79					0.07	c0.14			
v/c Ratio		0.34	1.03		0.38			0.49	0.92			
Uniform Delay, d1		4.9	15.4		5.1			50.5	54.3			
Progression Factor		1.19	6.01		0.14			1.00	1.00			
Incremental Delay, d2		0.1	26.5		0.0			0.6	38.7			
Delay (s)		6.0	119.1		0.8			51.1	93.1			
Level of Service		A	F		A			D	F			
Approach Delay (s)		76.5			0.8			83.9			0.0	
Approach LOS		E			A			F			A	
Intersection Summary												
HCM 2000 Control Delay			59.5		HCM 2000 Level of Service					E		
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					11.0		
Intersection Capacity Utilization			87.9%		ICU Level of Service					E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: I-5 NB & Kuebler Blvd

11/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑			↗	↗			
Traffic Volume (vph)	0	692	1133	0	1035	336	91	1	155	0	0	0
Future Volume (vph)	0	692	1133	0	1035	336	91	1	155	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	4.0		6.0			5.0	5.0			
Lane Util. Factor		0.95	1.00		0.95			1.00	1.00			
Frt		1.00	0.85		0.96			1.00	0.85			
Flt Protected		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (prot)		3320	1485		3230			1443	1430			
Flt Permitted		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (perm)		3320	1485		3230			1443	1430			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	728	1193	0	1089	354	96	1	163	0	0	0
RTOR Reduction (vph)	0	0	0	0	13	0	0	0	148	0	0	0
Lane Group Flow (vph)	0	728	1193	0	1430	0	0	97	15	0	0	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	7%	7%	7%	2%	2%	2%
Parking (#/hr)								0				
Turn Type		NA	Free		NA		Split	NA	Perm			
Protected Phases		2			6		8	8				
Permitted Phases			Free						8			
Actuated Green, G (s)		107.2	130.0		107.2			11.8	11.8			
Effective Green, g (s)		107.2	130.0		107.2			11.8	11.8			
Actuated g/C Ratio		0.82	1.00		0.82			0.09	0.09			
Clearance Time (s)		6.0			6.0			5.0	5.0			
Vehicle Extension (s)		0.5			0.5			0.5	0.5			
Lane Grp Cap (vph)		2737	1485		2663			130	129			
v/s Ratio Prot		0.22			0.44			0.07				
v/s Ratio Perm			c0.80						0.01			
v/c Ratio		0.27	0.80		0.54			0.75	0.11			
Uniform Delay, d1		2.6	0.0		3.6			57.6	54.3			
Progression Factor		2.69	1.00		1.25			1.00	1.00			
Incremental Delay, d2		0.0	0.4		0.5			18.2	0.1			
Delay (s)		6.9	0.4		5.0			75.9	54.4			
Level of Service		A	A		A			E	D			
Approach Delay (s)		2.9			5.0			62.4			0.0	
Approach LOS		A			A			E			A	
Intersection Summary												
HCM 2000 Control Delay			8.0									
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			130.0									
Intersection Capacity Utilization			56.1%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 36th Ave SE & Kuebler Blvd

03/16/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	774	132	78	628	233	118	56	65	20	19	41
Future Volume (vph)	231	774	132	78	628	233	118	56	65	20	19	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1480	1558	1324	1438	1453		1327	1284		1338	1409	1197
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1480	1558	1324	1438	1453		1327	1284		1338	1409	1197
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	260	870	148	88	706	262	133	63	73	22	21	46
RTOR Reduction (vph)	0	0	45	0	9	0	0	24	0	0	0	35
Lane Group Flow (vph)	260	870	103	88	959	0	133	112	0	22	21	12
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	16%	16%	16%	15%	15%	15%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									4
Actuated Green, G (s)	26.5	53.4	53.4	11.0	37.9		16.1	44.7		3.9	32.5	32.5
Effective Green, g (s)	26.5	53.4	53.4	11.0	37.9		16.1	44.7		3.9	32.5	32.5
Actuated g/C Ratio	0.20	0.41	0.41	0.08	0.29		0.12	0.34		0.03	0.25	0.25
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	301	639	543	121	423		164	441		40	352	299
v/s Ratio Prot	c0.18	c0.56		0.06	c0.66		c0.10	c0.09		0.02	0.01	
v/s Ratio Perm			0.08									0.01
v/c Ratio	0.86	1.36	0.19	0.73	2.27		0.81	0.25		0.55	0.06	0.04
Uniform Delay, d1	50.0	38.3	24.5	58.0	46.0		55.5	30.7		62.2	37.1	36.9
Progression Factor	0.98	1.02	1.09	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	19.0	171.5	0.7	16.8	578.3		24.1	0.1		9.0	0.3	0.2
Delay (s)	68.3	210.4	27.3	74.8	624.3		79.6	30.8		71.1	37.4	37.2
Level of Service	E	F	C	E	F		E	C		E	D	D
Approach Delay (s)		160.3			578.5			54.9			45.6	
Approach LOS		F			F			D			D	
Intersection Summary												
HCM 2000 Control Delay			310.0			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.21									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			17.0			
Intersection Capacity Utilization			96.4%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 36th Ave SE & Kuebler Blvd

03/15/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	709	112	72	900	36	182	23	104	186	45	280
Future Volume (vph)	45	709	112	72	900	36	182	23	104	186	45	280
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1452	1528	1299	1494	1564		1480	1366		1509	1588	1350
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1452	1528	1299	1494	1564		1480	1366		1509	1588	1350
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	771	122	78	978	39	198	25	113	202	49	304
RTOR Reduction (vph)	0	0	47	0	1	0	0	83	0	0	0	184
Lane Group Flow (vph)	49	771	75	78	1016	0	198	55	0	202	49	120
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									6
Actuated Green, G (s)	6.8	49.0	49.0	9.0	51.2		20.6	34.4		20.6	34.4	51.2
Effective Green, g (s)	6.8	49.0	49.0	9.0	51.2		20.6	34.4		20.6	34.4	51.2
Actuated g/C Ratio	0.05	0.38	0.38	0.07	0.39		0.16	0.26		0.16	0.26	0.39
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	5.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	75	575	489	103	615		234	361		239	420	531
v/s Ratio Prot	0.03	0.50		c0.05	c0.65		0.13	c0.04		c0.13	0.03	
v/s Ratio Perm			0.06									0.09
v/c Ratio	0.65	1.34	0.15	0.76	1.65		0.85	0.15		0.85	0.12	0.23
Uniform Delay, d1	60.4	40.5	26.8	59.4	39.4		53.2	36.6		53.2	36.3	26.2
Progression Factor	0.70	1.39	1.70	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.2	164.6	0.6	24.1	300.9		22.7	0.1		22.2	0.6	1.0
Delay (s)	56.7	220.7	46.2	83.5	340.3		75.8	36.7		75.4	36.8	27.2
Level of Service	E	F	D	F	F		E	D		E	D	C
Approach Delay (s)		189.6			322.0			59.8			45.6	
Approach LOS		F			F			E			D	
Intersection Summary												
HCM 2000 Control Delay			196.9			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				17.0		
Intersection Capacity Utilization			101.9%			ICU Level of Service				G		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th TWSC
4: 32th Ave SE/32nd Ave SE & Boone Rd SE

11/16/2021

Intersection

Int Delay, s/veh 5.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	1	1	36	1	1
Future Vol, veh/h	56	1	1	36	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	1	1	39	1	1

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	24	21	0
Stage 1	21	-	-
Stage 2	3	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	992	1056	-
Stage 1	1002	-	-
Stage 2	1020	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	991	1056	-
Mov Cap-2 Maneuver	991	-	-
Stage 1	1002	-	-
Stage 2	1019	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	992	1570
HCM Lane V/C Ratio	-	-	0.062	0.001
HCM Control Delay (s)	-	-	8.9	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM 6th TWSC
4: 32th Ave SE/32nd Ave SE & Boone Rd SE

11/16/2021

Intersection

Int Delay, s/veh 2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	1	1	56	1	1
Future Vol, veh/h	20	1	1	56	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	1	1	61	1	1

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	35	32	0
Stage 1	32	-	-
Stage 2	3	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	978	1042	-
Stage 1	991	-	-
Stage 2	1020	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	977	1042	-
Mov Cap-2 Maneuver	977	-	-
Stage 1	991	-	-
Stage 2	1019	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.8	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	980	1541
HCM Lane V/C Ratio	-	-	0.023	0.001
HCM Control Delay (s)	-	-	8.8	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC
5: 36th Ave SE & Boone Rd SE

11/16/2021

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	126	1	8	1	1	12	4	173	1	12	126	92
Future Vol, veh/h	126	1	8	1	1	12	4	173	1	12	126	92
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	1	1	1	17	17	17	7	7	7	10	10	10
Mvmt Flow	156	1	10	1	1	15	5	214	1	15	156	114
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	476	468	213	474	525	215	270	0	0	215	0	0
Stage 1	243	243	-	225	225	-	-	-	-	-	-	-
Stage 2	233	225	-	249	300	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.27	6.67	6.37	4.17	-	-	4.2	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.653	4.153	3.453	2.263	-	-	2.29	-	-
Pot Cap-1 Maneuver	501	494	830	477	437	789	1265	-	-	1309	-	-
Stage 1	763	707	-	745	691	-	-	-	-	-	-	-
Stage 2	772	719	-	723	639	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	484	485	830	464	429	789	1265	-	-	1309	-	-
Mov Cap-2 Maneuver	484	485	-	464	429	-	-	-	-	-	-	-
Stage 1	760	697	-	742	688	-	-	-	-	-	-	-
Stage 2	753	716	-	703	630	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	15.9		10.2		0.2		0.4					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1265	-	-	496	711	1309	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.336	0.024	0.011	-	-				
HCM Control Delay (s)	7.9	0	-	15.9	10.2	7.8	0	-				
HCM Lane LOS	A	A	-	C	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	1.5	0.1	0	-	-				

HCM 6th TWSC
5: 36th Ave SE & Boone Rd SE

11/17/2021

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	63	1	4	1	1	27	8	149	3	17	119	83
Future Vol, veh/h	63	1	4	1	1	27	8	149	3	17	119	83
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	17	17	17	7	7	7	10	10	10
Mvmt Flow	77	1	5	1	1	33	10	182	4	21	145	101
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	459	444	196	445	492	184	246	0	0	186	0	0
Stage 1	238	238	-	204	204	-	-	-	-	-	-	-
Stage 2	221	206	-	241	288	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.27	6.67	6.37	4.17	-	-	4.2	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.653	4.153	3.453	2.263	-	-	2.29	-	-
Pot Cap-1 Maneuver	514	510	848	499	457	821	1291	-	-	1342	-	-
Stage 1	768	710	-	765	706	-	-	-	-	-	-	-
Stage 2	784	733	-	730	647	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	482	496	848	485	445	821	1291	-	-	1342	-	-
Mov Cap-2 Maneuver	482	496	-	485	445	-	-	-	-	-	-	-
Stage 1	761	697	-	758	700	-	-	-	-	-	-	-
Stage 2	744	726	-	711	635	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	13.7		9.8		0.4		0.6					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1291	-	-	495	780	1342	-	-				
HCM Lane V/C Ratio	0.008	-	-	0.168	0.045	0.015	-	-				
HCM Control Delay (s)	7.8	0	-	13.7	9.8	7.7	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.6	0.1	0	-	-				

HCM 6th TWSC
8: 36th Ave SE & Kashmir Way SE

11/16/2021

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	5	41	80	5	47	40
Future Vol, veh/h	5	41	80	5	47	40
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	77	77	77	77	77	77
Heavy Vehicles, %	31	31	17	17	6	6
Mvmt Flow	6	53	104	6	61	52
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	283	109	0	0	112	0
Stage 1	109	-	-	-	-	-
Stage 2	174	-	-	-	-	-
Critical Hdwy	6.71	6.51	-	-	4.16	-
Critical Hdwy Stg 1	5.71	-	-	-	-	-
Critical Hdwy Stg 2	5.71	-	-	-	-	-
Follow-up Hdwy	3.779	3.579	-	-	2.254	-
Pot Cap-1 Maneuver	650	871	-	-	1453	-
Stage 1	848	-	-	-	-	-
Stage 2	791	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	621	869	-	-	1450	-
Mov Cap-2 Maneuver	621	-	-	-	-	-
Stage 1	846	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.7	0		4.1		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	833	1450	-	
HCM Lane V/C Ratio	-	-	0.072	0.042	-	
HCM Control Delay (s)	-	-	9.7	7.6	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

HCM 6th TWSC
8: 36th Ave SE & Kashmir Way SE

11/16/2021

Intersection

Int Delay, s/veh 2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	66	101	4	18	94
Future Vol, veh/h	9	66	101	4	18	94
Conflicting Peds, #/hr	0	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	4	4	3	3	15	15
Mvmt Flow	11	83	126	5	23	118

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	295	131	0
Stage 1	131	-	-
Stage 2	164	-	-
Critical Hdwy	6.44	6.24	-
Critical Hdwy Stg 1	5.44	-	-
Critical Hdwy Stg 2	5.44	-	-
Follow-up Hdwy	3.536	3.336	-
Pot Cap-1 Maneuver	692	913	-
Stage 1	890	-	-
Stage 2	860	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	678	911	-
Mov Cap-2 Maneuver	678	-	-
Stage 1	888	-	-
Stage 2	845	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	875	1372
HCM Lane V/C Ratio	-	-	0.107	0.016
HCM Control Delay (s)	-	-	9.6	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Queuing and Blocking Report

Baseline

03/20/2022

Intersection: 1: I-5 SB & Kuelber Blvd/Kuebler Blvd

Movement	EB	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	T	R	T	T	L	R	R
Maximum Queue (ft)	1309	1325	575	82	118	274	364	323
Average Queue (ft)	1261	1282	206	20	41	150	207	175
95th Queue (ft)	1440	1377	660	57	92	257	305	274
Link Distance (ft)	1267	1267		976	976		1371	
Upstream Blk Time (%)	21	60						
Queuing Penalty (veh)	0	0						
Storage Bay Dist (ft)			550			550		550
Storage Blk Time (%)		51	0					
Queuing Penalty (veh)		34	1					

Intersection: 2: I-5 NB & Kuebler Blvd

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	T	T	R	T	TR	LT	R
Maximum Queue (ft)	768	1002	125	54	47	1568	155
Average Queue (ft)	282	536	81	5	5	629	143
95th Queue (ft)	656	1202	178	26	25	1484	185
Link Distance (ft)	976	976		193	193	2010	
Upstream Blk Time (%)	0	6				3	
Queuing Penalty (veh)	0	58				0	
Storage Bay Dist (ft)			100				130
Storage Blk Time (%)		17	1			7	60
Queuing Penalty (veh)		205	4			26	57

Intersection: 3: 36th Ave SE & Kuebler Blvd

Movement	EB	EB	EB	B23	B23	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	T	T	L	TR	L	TR	L	T	R
Maximum Queue (ft)	375	1803	1791	270	282	255	2156	199	533	100	73	90
Average Queue (ft)	349	1715	1573	178	176	104	2122	145	179	27	15	26
95th Queue (ft)	438	1975	2268	328	339	265	2153	231	475	70	51	66
Link Distance (ft)		1688	1688	193	193		2082		687		843	
Upstream Blk Time (%)		80	34	38	24		91		1			
Queuing Penalty (veh)		434	182	202	126		0		2			
Storage Bay Dist (ft)	350					230		175		130		140
Storage Blk Time (%)	40	24				0	60	23	4	0	0	
Queuing Penalty (veh)	303	57				0	47	28	4	0	0	

Queuing and Blocking Report

Baseline

03/20/2022

Intersection: 4: 32th Ave SE/32nd Ave SE & Boone Rd SE

Movement	WB
Directions Served	LR
Maximum Queue (ft)	35
Average Queue (ft)	12
95th Queue (ft)	39
Link Distance (ft)	1712
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 36th Ave SE & Boone Rd SE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	73	81	68	40
Average Queue (ft)	34	25	5	3
95th Queue (ft)	61	60	37	25
Link Distance (ft)	1712	2012	1295	687
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: 36th Ave SE & Kashmir Way SE

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	81	55
Average Queue (ft)	35	4
95th Queue (ft)	71	24
Link Distance (ft)	2130	1295
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1773

Queuing and Blocking Report

Baseline

03/20/2022

Intersection: 1: I-5 SB & Kuelber Blvd/Kuebler Blvd

Movement	EB	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	T	R	T	T	L	R	R
Maximum Queue (ft)	1296	1331	575	218	243	524	546	532
Average Queue (ft)	946	1057	317	125	160	509	513	512
95th Queue (ft)	1589	1573	788	192	225	522	526	521
Link Distance (ft)	1266	1266		978	978		492	
Upstream Blk Time (%)	5	22				69	92	79
Queuing Penalty (veh)	0	0				0	0	0
Storage Bay Dist (ft)			550			550		550
Storage Blk Time (%)		29	0			69	92	79
Queuing Penalty (veh)		42	3			1097	831	716

Intersection: 2: I-5 NB & Kuebler Blvd

Movement	EB	EB	EB	WB	WB	B23	NB	NB
Directions Served	T	T	R	T	TR	T	LT	R
Maximum Queue (ft)	371	617	123	144	207	12	358	155
Average Queue (ft)	109	159	36	44	80	0	140	83
95th Queue (ft)	288	529	127	107	162	9	293	162
Link Distance (ft)	978	978		192	192	1688	1010	
Upstream Blk Time (%)				0	0			
Queuing Penalty (veh)				0	3			
Storage Bay Dist (ft)			100					130
Storage Blk Time (%)		3	0				14	4
Queuing Penalty (veh)		33	1				22	3

Intersection: 3: 36th Ave SE & Kuebler Blvd

Movement	EB	EB	EB	B23	B23	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	T	T	L	TR	L	TR	L	T	R
Maximum Queue (ft)	375	1787	1762	246	240	254	2156	200	703	154	658	165
Average Queue (ft)	134	1562	1190	78	64	89	2111	197	635	118	266	135
95th Queue (ft)	386	2024	2132	243	223	239	2136	215	870	182	680	193
Link Distance (ft)		1688	1688	192	192		2082		687		843	
Upstream Blk Time (%)		40	13	10	5		94		47		5	
Queuing Penalty (veh)		169	56	42	21		0		141		0	
Storage Bay Dist (ft)	350					230		175		130		140
Storage Blk Time (%)	0	58					63	84	5	21	1	24
Queuing Penalty (veh)	0	26					46	105	9	68	2	56

Queuing and Blocking Report

Baseline

03/20/2022

Intersection: 4: 32th Ave SE/32nd Ave SE & Boone Rd SE

Movement	WB
Directions Served	LR
Maximum Queue (ft)	52
Average Queue (ft)	26
95th Queue (ft)	54
Link Distance (ft)	1712
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: 36th Ave SE & Boone Rd SE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	800	112	295	49
Average Queue (ft)	457	26	119	2
95th Queue (ft)	1021	83	291	16
Link Distance (ft)	1712	2012	1295	687
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: 36th Ave SE & Kashmir Way SE

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	59	56
Average Queue (ft)	32	3
95th Queue (ft)	50	25
Link Distance (ft)	2130	1295
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 3494

APPENDIX F:

SYNCHRO REPORTS – 2025 TOTAL AM + PM

HCM Signalized Intersection Capacity Analysis

1: I-5 SB & Kuelber Blvd/Kuebler Blvd

01/29/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1866	68	0	590	159	0	0	0	237	0	882
Future Volume (vph)	0	1866	68	0	590	159	0	0	0	237	0	882
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	6.0		6.0	6.0				5.0		5.0
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3353	1500		3320	1485				1629		2565
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3353	1500		3320	1485				1629		2565
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	2120	77	0	670	181	0	0	0	269	0	1002
RTOR Reduction (vph)	0	0	27	0	0	63	0	0	0	0	0	356
Lane Group Flow (vph)	0	2120	50	0	670	118	0	0	0	269	0	646
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Turn Type		NA	Prot		NA	Prot				Perm		Perm
Protected Phases		2	2		6	6						
Permitted Phases										8		8
Actuated Green, G (s)		85.0	85.0		85.0	85.0				34.0		34.0
Effective Green, g (s)		85.0	85.0		85.0	85.0				34.0		34.0
Actuated g/C Ratio		0.65	0.65		0.65	0.65				0.26		0.26
Clearance Time (s)		6.0	6.0		6.0	6.0				5.0		5.0
Vehicle Extension (s)		0.5	0.5		0.5	0.5				0.5		0.5
Lane Grp Cap (vph)		2192	980		2170	970				426		670
v/s Ratio Prot		c0.63	0.03		0.20	0.08						
v/s Ratio Perm										0.17		c0.25
v/c Ratio		0.97	0.05		0.31	0.12				0.63		0.96
Uniform Delay, d1		21.2	8.1		9.8	8.5				42.5		47.4
Progression Factor		1.00	1.00		0.43	0.38				1.00		1.00
Incremental Delay, d2		12.9	0.1		0.3	0.2				2.2		25.8
Delay (s)		34.1	8.2		4.5	3.5				44.7		73.2
Level of Service		C	A		A	A				D		E
Approach Delay (s)		33.2			4.3			0.0			67.2	
Approach LOS		C			A			A			E	
Intersection Summary												
HCM 2000 Control Delay			37.5		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)					11.0		
Intersection Capacity Utilization			76.6%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1: I-5 SB & Kuelber Blvd/Kuebler Blvd

01/29/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑				↑		↑↑
Traffic Volume (vph)	0	1666	147	0	885	310	0	0	0	166	0	1582
Future Volume (vph)	0	1666	147	0	885	310	0	0	0	166	0	1582
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	6.0		6.0	6.0				5.5		5.5
Lane Util. Factor		0.95	1.00		0.95	1.00				1.00		0.88
Frt		1.00	0.85		1.00	0.85				1.00		0.85
Flt Protected		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (prot)		3353	1500		3386	1515				1693		2666
Flt Permitted		1.00	1.00		1.00	1.00				0.95		1.00
Satd. Flow (perm)		3353	1500		3386	1515				1693		2666
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	1754	155	0	932	326	0	0	0	175	0	1665
RTOR Reduction (vph)	0	0	57	0	0	120	0	0	0	0	0	198
Lane Group Flow (vph)	0	1754	98	0	932	206	0	0	0	175	0	1467
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	2%	2%	2%	1%	1%	1%
Turn Type		NA	Prot		NA	Prot				Prot		Prot
Protected Phases		2	2		6	6				8		8
Permitted Phases												
Actuated Green, G (s)		82.0	82.0		82.0	82.0				36.5		36.5
Effective Green, g (s)		82.0	82.0		82.0	82.0				36.5		36.5
Actuated g/C Ratio		0.63	0.63		0.63	0.63				0.28		0.28
Clearance Time (s)		6.0	6.0		6.0	6.0				5.5		5.5
Vehicle Extension (s)		0.5	0.5		0.5	0.5				3.0		3.0
Lane Grp Cap (vph)		2114	946		2135	955				475		748
v/s Ratio Prot		c0.52	0.07		0.28	0.14				0.10		c0.55
v/s Ratio Perm												
v/c Ratio		0.83	0.10		0.44	0.22				0.37		1.96
Uniform Delay, d1		18.6	9.5		12.2	10.3				37.5		46.8
Progression Factor		1.00	1.00		1.07	2.12				1.00		1.00
Incremental Delay, d2		3.9	0.2		0.5	0.4				0.5		437.5
Delay (s)		22.5	9.7		13.6	22.1				38.0		484.3
Level of Service		C	A		B	C				D		F
Approach Delay (s)		21.5			15.8			0.0			441.8	
Approach LOS		C			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			174.5									HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio			1.18									
Actuated Cycle Length (s)			130.0							11.5		
Intersection Capacity Utilization			93.8%									ICU Level of Service F
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: I-5 NB & Kuebler Blvd

01/29/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑			↑	↑			
Traffic Volume (vph)	0	849	1268	0	655	209	97	1	405	0	0	0
Future Volume (vph)	0	849	1268	0	655	209	97	1	405	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	4.0		6.0			5.0	5.0			
Lane Util. Factor		0.95	1.00		0.95			1.00	1.00			
Frt		1.00	0.85		0.96			1.00	0.85			
Flt Protected		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (prot)		3353	1500		2996			1484	1471			
Flt Permitted		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (perm)		3353	1500		2996			1484	1471			
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	965	1441	0	744	238	110	1	460	0	0	0
RTOR Reduction (vph)	0	0	0	0	24	0	0	0	153	0	0	0
Lane Group Flow (vph)	0	965	1441	0	958	0	0	111	307	0	0	0
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	4%	4%	4%	2%	2%	2%
Parking (#/hr)								0				
Turn Type		NA	Free		NA		Split	NA	Perm			
Protected Phases		2			6		8	8				
Permitted Phases			Free						8			
Actuated Green, G (s)		94.0	130.0		94.0			25.0	25.0			
Effective Green, g (s)		94.0	130.0		94.0			25.0	25.0			
Actuated g/C Ratio		0.72	1.00		0.72			0.19	0.19			
Clearance Time (s)		6.0			6.0			5.0	5.0			
Vehicle Extension (s)		0.5			0.5			0.5	0.5			
Lane Grp Cap (vph)		2424	1500		2166			285	282			
v/s Ratio Prot		0.29			0.32			0.07				
v/s Ratio Perm			c0.96						0.21			
v/c Ratio		0.40	0.96		0.44			0.39	1.09			
Uniform Delay, d1		7.0	0.0		7.3			45.8	52.5			
Progression Factor		1.08	1.00		0.13			1.00	1.00			
Incremental Delay, d2		0.2	7.8		0.1			0.3	78.8			
Delay (s)		7.8	7.8		1.0			46.2	131.3			
Level of Service		A	A		A			D	F			
Approach Delay (s)		7.8			1.0			114.7			0.0	
Approach LOS		A			A			F			A	
Intersection Summary												
HCM 2000 Control Delay			21.5									
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			130.0									
Intersection Capacity Utilization			60.4%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: I-5 NB & Kuebler Blvd

01/29/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑			↑	↑			
Traffic Volume (vph)	0	756	1133	0	1113	406	91	1	198	0	0	0
Future Volume (vph)	0	756	1133	0	1113	406	91	1	198	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		6.0	4.0		6.0			5.0	5.0			
Lane Util. Factor		0.95	1.00		0.95			1.00	1.00			
Frpb, ped/bikes		1.00	1.00		0.99			1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00			1.00	1.00			
Frt		1.00	0.85		0.96			1.00	0.85			
Flt Protected		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (prot)		3320	1485		3195			1443	1430			
Flt Permitted		1.00	1.00		1.00			0.95	1.00			
Satd. Flow (perm)		3320	1485		3195			1443	1430			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	796	1193	0	1172	427	96	1	208	0	0	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	189	0	0	0
Lane Group Flow (vph)	0	796	1193	0	1584	0	0	97	19	0	0	0
Confl. Peds. (#/hr)	2					2						
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	7%	7%	7%	2%	2%	2%
Parking (#/hr)								0				
Turn Type		NA	Free		NA		Split	NA	Perm			
Protected Phases		2			6		8	8				
Permitted Phases			Free						8			
Actuated Green, G (s)		107.2	130.0		107.2			11.8	11.8			
Effective Green, g (s)		107.2	130.0		107.2			11.8	11.8			
Actuated g/C Ratio		0.82	1.00		0.82			0.09	0.09			
Clearance Time (s)		6.0			6.0			5.0	5.0			
Vehicle Extension (s)		0.5			0.5			0.5	0.5			
Lane Grp Cap (vph)		2737	1485		2634			130	129			
v/s Ratio Prot		0.24			0.50			0.07				
v/s Ratio Perm			c0.80						0.01			
v/c Ratio		0.29	0.80		0.60			0.75	0.15			
Uniform Delay, d1		2.6	0.0		4.0			57.6	54.5			
Progression Factor		0.22	1.00		0.20			1.00	1.00			
Incremental Delay, d2		0.2	3.0		0.1			18.2	0.2			
Delay (s)		0.8	3.0		0.9			75.9	54.7			
Level of Service		A	A		A			E	D			
Approach Delay (s)		2.1			0.9			61.4			0.0	
Approach LOS		A			A			E			A	
Intersection Summary												
HCM 2000 Control Delay			6.2									
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			130.0									
Intersection Capacity Utilization			60.8%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 36th Ave SE & Kuebler Blvd

03/15/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	774	269	90	628	233	207	60	73	20	26	41
Future Volume (vph)	231	774	269	90	628	233	207	60	73	20	26	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1480	1558	1324	1438	1453		2574	1281		1338	1409	1197
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1480	1558	1324	1438	1453		2574	1281		1338	1409	1197
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	260	870	302	101	706	262	233	67	82	22	29	46
RTOR Reduction (vph)	0	0	76	0	9	0	0	26	0	0	0	34
Lane Group Flow (vph)	260	870	226	101	959	0	233	123	0	22	29	12
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	16%	16%	16%	15%	15%	15%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									4
Actuated Green, G (s)	26.5	52.1	52.1	12.3	37.9		14.8	44.7		3.9	33.8	33.8
Effective Green, g (s)	26.5	52.1	52.1	12.3	37.9		14.8	44.7		3.9	33.8	33.8
Actuated g/C Ratio	0.20	0.40	0.40	0.09	0.29		0.11	0.34		0.03	0.26	0.26
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	301	624	530	136	423		293	440		40	366	311
v/s Ratio Prot	c0.18	c0.56		0.07	c0.66		c0.09	c0.10		0.02	0.02	
v/s Ratio Perm			0.17									0.01
v/c Ratio	0.86	1.39	0.43	0.74	2.27		0.80	0.28		0.55	0.08	0.04
Uniform Delay, d1	50.0	39.0	28.2	57.3	46.0		56.1	31.0		62.2	36.3	36.0
Progression Factor	0.99	1.04	1.10	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	17.6	185.2	2.0	17.3	578.3		13.0	0.1		9.0	0.4	0.2
Delay (s)	67.3	225.6	33.0	74.6	624.3		69.1	31.1		71.1	36.8	36.2
Level of Service	E	F	C	E	F		E	C		E	D	D
Approach Delay (s)		156.3			572.4			54.3			44.3	
Approach LOS		F			F			D			D	
Intersection Summary												
HCM 2000 Control Delay	288.8			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	1.20											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)			17.0					
Intersection Capacity Utilization	96.9%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 36th Ave SE & Kuebler Blvd

03/15/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	774	269	90	628	233	207	60	73	20	26	41
Future Volume (vph)	231	774	269	90	628	233	207	60	73	20	26	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1480	1558	1324	1438	1453		1327	1281		1338	1409	1197
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1480	1558	1324	1438	1453		1327	1281		1338	1409	1197
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	260	870	302	101	706	262	233	67	82	22	29	46
RTOR Reduction (vph)	0	0	76	0	9	0	0	26	0	0	0	38
Lane Group Flow (vph)	260	870	226	101	959	0	233	123	0	22	29	8
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	16%	16%	16%	15%	15%	15%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									4
Actuated Green, G (s)	26.5	52.1	52.1	12.3	37.9		25.1	44.7		3.9	23.5	23.5
Effective Green, g (s)	26.5	52.1	52.1	12.3	37.9		25.1	44.7		3.9	23.5	23.5
Actuated g/C Ratio	0.20	0.40	0.40	0.09	0.29		0.19	0.34		0.03	0.18	0.18
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	301	624	530	136	423		256	440		40	254	216
v/s Ratio Prot	c0.18	c0.56		0.07	c0.66		c0.18	c0.10		0.02	0.02	
v/s Ratio Perm			0.17									0.01
v/c Ratio	0.86	1.39	0.43	0.74	2.27		0.91	0.28		0.55	0.11	0.04
Uniform Delay, d1	50.0	39.0	28.2	57.3	46.0		51.3	31.0		62.2	44.5	43.9
Progression Factor	0.99	1.04	1.10	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	17.6	185.2	2.0	17.3	578.3		32.9	0.1		9.0	0.9	0.3
Delay (s)	67.3	225.6	33.0	74.6	624.3		84.3	31.1		71.1	45.5	44.3
Level of Service	E	F	C	E	F		F	C		E	D	D
Approach Delay (s)		156.3			572.4			63.5			50.7	
Approach LOS		F			F			E			D	
Intersection Summary												
HCM 2000 Control Delay			290.2			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.28									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				17.0		
Intersection Capacity Utilization			101.4%			ICU Level of Service				G		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 36th Ave SE & Kuebler Blvd

03/15/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	709	219	82	900	36	330	30	118	186	50	280
Future Volume (vph)	45	709	219	82	900	36	330	30	118	186	50	280
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1452	1528	1299	1494	1564		1480	1372		1509	1588	1350
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1452	1528	1299	1494	1564		1480	1372		1509	1588	1350
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	771	238	89	978	39	359	33	128	202	54	304
RTOR Reduction (vph)	0	0	64	0	1	0	0	93	0	0	0	184
Lane Group Flow (vph)	49	771	174	89	1016	0	359	68	0	202	54	120
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									6
Actuated Green, G (s)	6.8	47.1	47.1	10.9	51.2		33.3	34.4		20.6	21.7	51.2
Effective Green, g (s)	6.8	47.1	47.1	10.9	51.2		33.3	34.4		20.6	21.7	51.2
Actuated g/C Ratio	0.05	0.36	0.36	0.08	0.39		0.26	0.26		0.16	0.17	0.39
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	5.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	75	553	470	125	615		379	363		239	265	531
v/s Ratio Prot	0.03	0.50		c0.06	c0.65		c0.24	c0.05		0.13	0.03	
v/s Ratio Perm			0.13									0.09
v/c Ratio	0.65	1.39	0.37	0.71	1.65		0.95	0.19		0.85	0.20	0.23
Uniform Delay, d1	60.4	41.4	30.5	58.0	39.4		47.5	37.0		53.2	46.7	26.2
Progression Factor	0.73	1.33	1.53	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.1	187.9	2.2	14.7	300.9		32.2	0.1		22.2	1.7	1.0
Delay (s)	58.0	243.0	48.7	72.7	340.3		79.7	37.1		75.4	48.4	27.2
Level of Service	E	F	D	E	F		E	D		E	D	C
Approach Delay (s)		190.7			318.8			66.5			46.6	
Approach LOS		F			F			E			D	
Intersection Summary												
HCM 2000 Control Delay			189.6			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.12									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)				17.0		
Intersection Capacity Utilization			111.6%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: 36th Ave SE & Kuebler Blvd

03/15/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	709	219	82	900	36	330	30	118	186	50	280
Future Volume (vph)	45	709	219	82	900	36	330	30	118	186	50	280
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		0.97	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1452	1528	1299	1494	1564		2871	1372		1509	1588	1350
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1452	1528	1299	1494	1564		2871	1372		1509	1588	1350
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	771	238	89	978	39	359	33	128	202	54	304
RTOR Reduction (vph)	0	0	64	0	1	0	0	93	0	0	0	221
Lane Group Flow (vph)	49	771	174	89	1016	0	359	68	0	202	54	83
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									4
Actuated Green, G (s)	6.8	47.1	47.1	10.9	51.2		19.5	34.4		20.6	35.5	35.5
Effective Green, g (s)	6.8	47.1	47.1	10.9	51.2		19.5	34.4		20.6	35.5	35.5
Actuated g/C Ratio	0.05	0.36	0.36	0.08	0.39		0.15	0.26		0.16	0.27	0.27
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lane Grp Cap (vph)	75	553	470	125	615		430	363		239	433	368
v/s Ratio Prot	0.03	0.50		c0.06	c0.65		0.13	0.05		c0.13	0.03	
v/s Ratio Perm			0.13									c0.06
v/c Ratio	0.65	1.39	0.37	0.71	1.65		0.83	0.19		0.85	0.12	0.23
Uniform Delay, d1	60.4	41.4	30.5	58.0	39.4		53.7	37.0		53.2	35.6	36.6
Progression Factor	0.73	1.33	1.53	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.1	187.9	2.2	14.7	300.9		12.6	0.1		22.2	0.6	1.4
Delay (s)	58.0	243.0	48.7	72.7	340.3		66.3	37.1		75.4	36.1	38.0
Level of Service	E	F	D	E	F		E	D		E	D	D
Approach Delay (s)		190.7			318.8			57.2			51.3	
Approach LOS		F			F			E			D	
Intersection Summary												
HCM 2000 Control Delay	188.9			HCM 2000 Level of Service			F					
HCM 2000 Volume to Capacity ratio	1.02											
Actuated Cycle Length (s)	130.0			Sum of lost time (s)			17.0					
Intersection Capacity Utilization	100.3%			ICU Level of Service			G					
Analysis Period (min)	15											
c Critical Lane Group												

HCM 6th TWSC
4: 32th Ave SE/32nd Ave SE & Boone Rd SE

01/29/2022

Intersection

Int Delay, s/veh 2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	1	1	93	1	1
Future Vol, veh/h	25	1	1	93	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	1	1	101	1	1

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	55	52	0
Stage 1	52	-	-
Stage 2	3	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	953	1016	-
Stage 1	970	-	-
Stage 2	1020	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	952	1016	-
Mov Cap-2 Maneuver	952	-	-
Stage 1	970	-	-
Stage 2	1019	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	3.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	954	1490
HCM Lane V/C Ratio	-	-	0.03	0.001
HCM Control Delay (s)	-	-	8.9	7.4
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC
4: 32th Ave SE/32nd Ave SE & Boone Rd SE

01/29/2022

Intersection						
Int Delay, s/veh	5.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	76	1	1	48	1	1
Future Vol, veh/h	76	1	1	48	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	1	1	52	1	1
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	30	27	0	0	53	0
Stage 1	27	-	-	-	-	-
Stage 2	3	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	984	1048	-	-	1553	-
Stage 1	996	-	-	-	-	-
Stage 2	1020	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	983	1048	-	-	1553	-
Mov Cap-2 Maneuver	983	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	1019	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9	0		3.7		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	984	1553	-	
HCM Lane V/C Ratio	-	-	0.085	0.001	-	
HCM Control Delay (s)	-	-	9	7.3	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

HCM 6th TWSC
5: 36th Ave SE & Boone Rd SE

01/29/2022

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	117	1	4	1	1	27	8	196	3	17	192	166
Future Vol, veh/h	117	1	4	1	1	27	8	196	3	17	192	166
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	1	1	1	17	17	17	7	7	7	10	10	10
Mvmt Flow	143	1	5	1	1	33	10	239	4	21	234	202

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	655	640	335	641	739	241	436	0	0	243	0	0
Stage 1	377	377	-	261	261	-	-	-	-	-	-	-
Stage 2	278	263	-	380	478	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.27	6.67	6.37	4.17	-	-	4.2	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.653	4.153	3.453	2.263	-	-	2.29	-	-
Pot Cap-1 Maneuver	381	395	709	367	328	762	1098	-	-	1278	-	-
Stage 1	647	618	-	712	666	-	-	-	-	-	-	-
Stage 2	731	693	-	613	531	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	354	382	709	355	317	762	1098	-	-	1278	-	-
Mov Cap-2 Maneuver	354	382	-	355	317	-	-	-	-	-	-	-
Stage 1	640	604	-	704	659	-	-	-	-	-	-	-
Stage 2	690	685	-	594	519	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	21.9		10.4		0.3		0.4	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1098	-	-	360 700	1278	-	-
HCM Lane V/C Ratio	0.009	-	-	0.413 0.051	0.016	-	-
HCM Control Delay (s)	8.3	0	-	21.9 10.4	7.9	0	-
HCM Lane LOS	A	A	-	C B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2 0.2	0	-	-

HCM 6th TWSC
5: 36th Ave SE & Boone Rd SE

01/29/2022

Intersection												
Int Delay, s/veh	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	145	1	8	1	1	12	4	323	1	12	193	147
Future Vol, veh/h	145	1	8	1	1	12	4	323	1	12	193	147
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	1	1	1	17	17	17	7	7	7	10	10	10
Mvmt Flow	179	1	10	1	1	15	5	399	1	15	238	181
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	777	769	329	774	859	400	419	0	0	400	0	0
Stage 1	359	359	-	410	410	-	-	-	-	-	-	-
Stage 2	418	410	-	364	449	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.27	6.67	6.37	4.17	-	-	4.2	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.27	5.67	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.653	4.153	3.453	2.263	-	-	2.29	-	-
Pot Cap-1 Maneuver	315	333	715	298	278	619	1114	-	-	1117	-	-
Stage 1	661	629	-	590	570	-	-	-	-	-	-	-
Stage 2	614	597	-	625	548	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	301	325	715	288	271	619	1114	-	-	1117	-	-
Mov Cap-2 Maneuver	301	325	-	288	271	-	-	-	-	-	-	-
Stage 1	657	618	-	586	567	-	-	-	-	-	-	-
Stage 2	594	593	-	604	538	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	33.4		12.1			0.1			0.3			
HCM LOS	D		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1114	-	-	310	527	1117	-	-				
HCM Lane V/C Ratio	0.004	-	-	0.613	0.033	0.013	-	-				
HCM Control Delay (s)	8.2	0	-	33.4	12.1	8.3	0	-				
HCM Lane LOS	A	A	-	D	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	3.8	0.1	0	-	-				

HCM 6th TWSC
6: 32th Ave SE & Street "A"

01/29/2022

Intersection						
Int Delay, s/veh	6.6					
Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	12	37	1	20	60	1
Future Vol, veh/h	12	37	1	20	60	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	40	1	22	65	1

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	143	12	0	0	23
Stage 1	12	-	-	-	-
Stage 2	131	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	850	1069	-	-	1592
Stage 1	1011	-	-	-	-
Stage 2	895	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	815	1069	-	-	1592
Mov Cap-2 Maneuver	815	-	-	-	-
Stage 1	1011	-	-	-	-
Stage 2	858	-	-	-	-

Approach	EB	SE	NW
HCM Control Delay, s	8.8	0	7.2
HCM LOS	A		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	1592	-	993	-	-
HCM Lane V/C Ratio	0.041	-	0.054	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

HCM 6th TWSC
6: 32th Ave SE & Street "A"

01/29/2022

Intersection						
Int Delay, s/veh	8					
Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	37	39	1	5	20	1
Future Vol, veh/h	37	39	1	5	20	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	40	42	1	5	22	1

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	49	4	0
Stage 1	4	-	-
Stage 2	45	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	960	1080	-
Stage 1	1019	-	-
Stage 2	977	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	947	1080	-
Mov Cap-2 Maneuver	947	-	-
Stage 1	1019	-	-
Stage 2	963	-	-

Approach	EB	SE	NW
HCM Control Delay, s	8.9	0	6.9
HCM LOS	A		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	1615	-	1011	-	-
HCM Lane V/C Ratio	0.013	-	0.082	-	-
HCM Control Delay (s)	7.3	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection

Int Delay, s/veh 4.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	150	1	3	122	86	67
Future Vol, veh/h	150	1	3	122	86	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	163	1	3	133	93	73

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	269	130	166
Stage 1	130	-	-
Stage 2	139	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pot Cap-1 Maneuver	720	920	1412
Stage 1	896	-	-
Stage 2	888	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	719	920	1412
Mov Cap-2 Maneuver	719	-	-
Stage 1	894	-	-
Stage 2	888	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.5	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1412	-	720	-	-
HCM Lane V/C Ratio	0.002	-	0.228	-	-
HCM Control Delay (s)	7.6	0	11.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.9	-	-

HCM 6th TWSC
7: 36th Ave SE & 32th Ave SE

01/29/2022

Intersection

Int Delay, s/veh 1.6

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations 

Traffic Vol, veh/h 47 1 1 120 89 71

Future Vol, veh/h 47 1 1 120 89 71

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 51 1 1 130 97 77

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 268 136 174 0 - 0

Stage 1 136 - - - - -

Stage 2 132 - - - - -

Critical Hdwy 6.42 6.22 4.12 - - -

Critical Hdwy Stg 1 5.42 - - - - -

Critical Hdwy Stg 2 5.42 - - - - -

Follow-up Hdwy 3.518 3.318 2.218 - - -

Pot Cap-1 Maneuver 721 913 1403 - - -

Stage 1 890 - - - - -

Stage 2 894 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 720 913 1403 - - -

Mov Cap-2 Maneuver 720 - - - - -

Stage 1 889 - - - - -

Stage 2 894 - - - - -

Approach EB NB SB

HCM Control Delay, s 10.4 0.1 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1403 - 723 - -

HCM Lane V/C Ratio 0.001 - 0.072 - -

HCM Control Delay (s) 7.6 0 10.4 - -

HCM Lane LOS A A B - -

HCM 95th %tile Q(veh) 0 - 0.2 - -

HCM 6th TWSC
8: 36th Ave SE & Driveway/Kashmir Way SE

01/29/2022

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	5	9	1	66	1	104	4	18	94	1
Future Vol, veh/h	1	1	5	9	1	66	1	104	4	18	94	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	4	4	4	3	3	3	15	15	15
Mvmt Flow	1	1	6	11	1	83	1	130	5	23	118	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	342	302	119	303	300	133	119	0	0	135	0	0
Stage 1	165	165	-	135	135	-	-	-	-	-	-	-
Stage 2	177	137	-	168	165	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.14	6.54	6.24	4.13	-	-	4.25	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.14	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.14	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.536	4.036	3.336	2.227	-	-	2.335	-	-
Pot Cap-1 Maneuver	612	611	933	645	609	911	1463	-	-	1373	-	-
Stage 1	837	762	-	864	781	-	-	-	-	-	-	-
Stage 2	825	783	-	829	758	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	548	599	933	630	597	911	1463	-	-	1373	-	-
Mov Cap-2 Maneuver	548	599	-	630	597	-	-	-	-	-	-	-
Stage 1	836	748	-	863	780	-	-	-	-	-	-	-
Stage 2	748	782	-	807	744	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.6		9.7		0.1		1.2	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1463	-	-	791	860	1373	-
HCM Lane V/C Ratio	0.001	-	-	0.011	0.11	0.016	-
HCM Control Delay (s)	7.5	0	-	9.6	9.7	7.7	0
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0.1	-

HCM 6th TWSC
8: 36th Ave SE & Driveway/Kashmir Way SE

01/29/2022

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	2	5	1	41	2	80	5	47	40	2
Future Vol, veh/h	1	1	2	5	1	41	2	80	5	47	40	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	2	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	2	2	2	31	31	31	17	17	17	6	6	6
Mvmt Flow	1	1	3	6	1	53	3	104	6	61	52	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	316	294	54	293	292	109	55	0	0	112	0	0
Stage 1	176	176	-	115	115	-	-	-	-	-	-	-
Stage 2	140	118	-	178	177	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.41	6.81	6.51	4.27	-	-	4.16	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.41	5.81	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.41	5.81	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.779	4.279	3.579	2.353	-	-	2.254	-	-
Pot Cap-1 Maneuver	637	617	1013	605	573	871	1459	-	-	1453	-	-
Stage 1	826	753	-	824	748	-	-	-	-	-	-	-
Stage 2	863	798	-	761	701	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	576	588	1013	581	546	869	1459	-	-	1450	-	-
Mov Cap-2 Maneuver	576	588	-	581	546	-	-	-	-	-	-	-
Stage 1	824	721	-	821	745	-	-	-	-	-	-	-
Stage 2	807	795	-	725	671	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.9		9.8		0.2		4	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1459	-	-	739 816	1450	-	-
HCM Lane V/C Ratio	0.002	-	-	0.007 0.075 0.042	-	-	-
HCM Control Delay (s)	7.5	0	-	9.9 9.8 7.6	0	-	-
HCM Lane LOS	A	A	-	A A A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0 0.2 0.1	-	-	-

Queuing and Blocking Report

Baseline

03/20/2022

Intersection: 1: I-5 SB & Kuelber Blvd/Kuebler Blvd

Movement	EB	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	T	R	T	T	L	R	R
Maximum Queue (ft)	1296	1307	575	90	125	458	648	339
Average Queue (ft)	1274	1285	269	23	40	222	257	186
95th Queue (ft)	1384	1347	741	66	101	392	531	303
Link Distance (ft)	1267	1267		978	978		1125	
Upstream Blk Time (%)	26	69					1	
Queuing Penalty (veh)	0	0					0	
Storage Bay Dist (ft)			550			550		550
Storage Blk Time (%)		59	0			2	0	
Queuing Penalty (veh)		40	2			16	0	

Intersection: 2: I-5 NB & Kuebler Blvd

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	T	T	R	T	TR	LT	R
Maximum Queue (ft)	961	1014	125	53	34	1072	155
Average Queue (ft)	437	671	88	5	4	815	149
95th Queue (ft)	935	1301	180	25	18	1410	176
Link Distance (ft)	978	978		192	192	1010	
Upstream Blk Time (%)	1	10				64	
Queuing Penalty (veh)	12	100				0	
Storage Bay Dist (ft)			100				130
Storage Blk Time (%)		21	1			7	74
Queuing Penalty (veh)		259	6			28	71

Intersection: 3: 36th Ave SE & Kuebler Blvd

Movement	EB	EB	EB	B23	B23	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	T	T	L	TR	L	TR	L	T	R
Maximum Queue (ft)	375	1801	1791	280	277	255	2152	200	703	100	88	86
Average Queue (ft)	364	1735	1648	196	189	120	2118	199	692	23	23	28
95th Queue (ft)	419	1949	2170	321	336	277	2146	202	710	66	66	65
Link Distance (ft)		1688	1688	192	192		2082		687		843	
Upstream Blk Time (%)		87	35	41	27		90		59			
Queuing Penalty (veh)		534	211	251	163		0		198			
Storage Bay Dist (ft)	350					230		175		130		140
Storage Blk Time (%)	51	18				0	60	87	6		0	
Queuing Penalty (veh)	398	41				0	54	116	11		0	

Queuing and Blocking Report

Baseline

03/20/2022

Intersection: 4: 32th Ave SE/32nd Ave SE & Boone Rd SE

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	40	5	6
Average Queue (ft)	15	0	0
95th Queue (ft)	42	4	4
Link Distance (ft)	1709	542	350
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 36th Ave SE & Boone Rd SE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	926	190	407	75
Average Queue (ft)	574	65	162	5
95th Queue (ft)	1304	163	348	35
Link Distance (ft)	1709	2012	667	687
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: 32th Ave SE & Street "A"

Movement	EB	NW
Directions Served	LR	LT
Maximum Queue (ft)	68	7
Average Queue (ft)	34	0
95th Queue (ft)	55	5
Link Distance (ft)	1160	1581
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report Baseline

03/20/2022

Intersection: 7: 36th Ave SE & 32th Ave SE

Movement	EB
Directions Served	LR
Maximum Queue (ft)	69
Average Queue (ft)	30
95th Queue (ft)	60
Link Distance (ft)	1581
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: 36th Ave SE & Driveway/Kashmir Way SE

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	34	92	36
Average Queue (ft)	5	37	5
95th Queue (ft)	23	77	23
Link Distance (ft)	431	2130	565
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 2510

Queuing and Blocking Report

Baseline

03/20/2022

Intersection: 1: I-5 SB & Kuelber Blvd/Kuebler Blvd

Movement	EB	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	T	R	T	T	L	R	R
Maximum Queue (ft)	1316	1312	575	219	257	524	517	534
Average Queue (ft)	1136	1195	325	121	157	501	511	512
95th Queue (ft)	1581	1512	794	200	234	587	520	525
Link Distance (ft)	1266	1266		978	978		492	
Upstream Blk Time (%)	9	34				56	87	75
Queuing Penalty (veh)	0	0				0	0	0
Storage Bay Dist (ft)			550			550		550
Storage Blk Time (%)		36	0			56	87	75
Queuing Penalty (veh)		52	3			883	833	717

Intersection: 2: I-5 NB & Kuebler Blvd

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	T	T	R	T	TR	LT	R
Maximum Queue (ft)	509	599	125	145	184	363	155
Average Queue (ft)	121	167	46	51	87	146	99
95th Queue (ft)	365	569	142	125	176	295	174
Link Distance (ft)	978	978		192	192	1010	
Upstream Blk Time (%)	0	0		0	1		
Queuing Penalty (veh)	0	4		1	6		
Storage Bay Dist (ft)			100				130
Storage Blk Time (%)		4	0			11	5
Queuing Penalty (veh)		42	2			22	5

Intersection: 3: 36th Ave SE & Kuebler Blvd

Movement	EB	EB	EB	B23	B23	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	R	T	T	L	TR	L	TR	L	T	R
Maximum Queue (ft)	374	1796	1706	224	190	255	2152	200	703	154	662	165
Average Queue (ft)	81	1503	1107	68	56	95	2110	199	692	114	239	138
95th Queue (ft)	279	2045	2135	227	206	249	2133	203	701	172	588	196
Link Distance (ft)		1688	1688	192	192		2082		687		843	
Upstream Blk Time (%)		36	12	8	5		93		71		2	
Queuing Penalty (veh)		170	56	38	24		0		341		0	
Storage Bay Dist (ft)	350					230		175		130		140
Storage Blk Time (%)	0	59				0	64	91	1	15	0	26
Queuing Penalty (veh)	0	26				0	53	134	2	50	0	63

Queuing and Blocking Report

Baseline

03/20/2022

Intersection: 4: 32th Ave SE/32nd Ave SE & Boone Rd SE

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	68	138	6
Average Queue (ft)	33	19	0
95th Queue (ft)	54	110	6
Link Distance (ft)	1712	546	350
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 36th Ave SE & Boone Rd SE

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	1630	252	681	40
Average Queue (ft)	1219	143	648	2
95th Queue (ft)	1834	326	794	17
Link Distance (ft)	1712	2012	666	687
Upstream Blk Time (%)	13		56	
Queuing Penalty (veh)	6		150	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: 32th Ave SE

Movement	NW	NE
Directions Served	LT	LR
Maximum Queue (ft)	14	55
Average Queue (ft)	1	28
95th Queue (ft)	11	53
Link Distance (ft)	1578	474
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report Baseline

03/20/2022

Intersection: 7: 36th Ave SE

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	902	193
Average Queue (ft)	560	80
95th Queue (ft)	1060	173
Link Distance (ft)	1578	567
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: 36th Ave SE & Kashmir Way SE

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	35	74	34
Average Queue (ft)	7	34	2
95th Queue (ft)	29	54	16
Link Distance (ft)	312	2130	567
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 3685
